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Health Work on a Sugar Plantation in Hawaii

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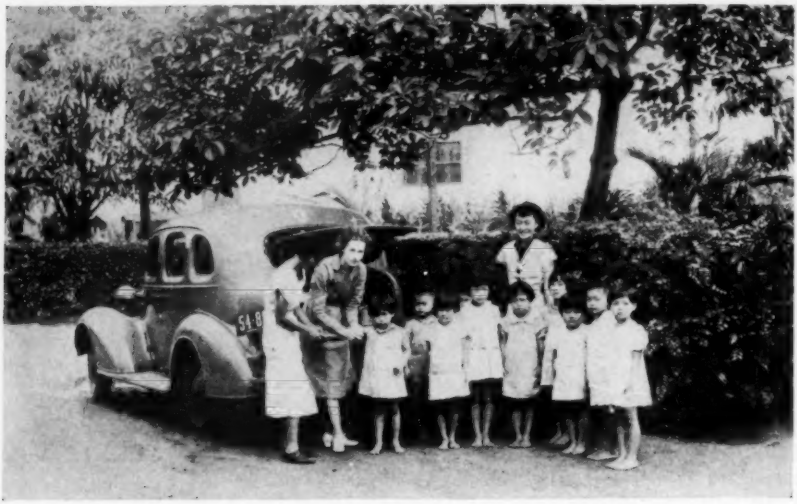
HAWAII was blessed with many resources which enrich the life of her people; but the modern comforts and scientific benefits so abundantly provided are results of the vision, energy, and careful planning of community leaders. Although the Hawaiian Islands, in the mid-Pacific, are 2,000 miles from their nearest neighbor, California, they compare in progressiveness with the most advanced communities on the mainland. The sugar plantations render a valuable medical and welfare service which is gradually expanding to embrace the essential features of public health.

The achievements in the promotion of health and the reduction of preventable diseases are an illustration of the progress in Hawaii. The quality of medical practice is in general high, and excellent hospital and clinic facilities are available. Through the activities of the Territorial Board of Health, with the coöperation of many official and voluntary agencies, smallpox has become a medical curiosity; typhoid and tuberculosis have been greatly reduced; and diphtheria is well on the way to control. Over 60 per cent of the preschool children have been given prophylactic injections against diphtheria in this Territory of some 400,000 people, and there was not a death from this disease during the fiscal year 1934-1935. The tuberculosis death rate has dropped from over 200 in 1920 to an annual average of under 100 for the past 5 years. The infant mortality rate in the Territory was 65 for the fiscal year 1935, with an annual average rate of 82 for the previous 5 years. The average birth rate for the period 1929–1933 was 28. There is considerable variation in the birth and death rates according to race. Hawaii has become a "melting pot" of races and nationalities, as the islands are relatively free from racial prejudice, and natives and immigrants have intermarried, freely.

Hawaii is the first Pacific outpost of America's health defense, and public health work there is of extreme importance to the rest of the United States and to the Army and Navy forces.*

* On the island of Oahu are several important Army posts, including Schofield barracks, the largest Army unit in the United States, and an important Navy station at Pearl Harbor, adapted for expansion as needs arise.



A plantation visiting nurse inspecting children. The doctor and nurse advise the mother regarding diet, clothing and general care.

With the development of an air route to the Orient, bringing Honolulu within 17 hours of the mainland, our interest is stimulated.

PLANTATION SERVICES

Nearly half of the people in the rural sections of the islands (outside the cities of Honolulu and Hilo) and nearly one-third of the total population live on 39 sugar plantations. In 1934, there were over 105,000 employees and their families living in some 20,000 plantation houses. Each plantation employee receives free housing for himself and family, including water and fuel for domestic purposes, besides medical care and community services. The building programs of many plantations cover houses of the one-family type, with bathroom and flush toilet, each located on a lot sufficiently large for a vegetable garden and other home activities. Some $6,500,000 have been expended on new housing during the past 10 years, besides a similar amount for reconstruction of existing homes. Good living conditions and medical care are regarded as important and are reflected in the health and morale of plantation communities.

The employees and their families on each plantation constitute a distinct community. Almost all of the plantations own and operate modern hospitals with medical and nursing staffs. Those which do not have their own hospitals arrange for medical service with a hospital within a reasonable distance. The plantation physician is also appointed by the Territorial Board of Health as a government physician, and directs public health activities within the plantation community, besides serving as registrar of vital statistics and school physician for the district of which the plantation is a part. Each plantation submits a monthly health and medical record to the central office of the Hawaiian Sugar Planters' Association showing basic statistics of births, deaths from important causes,

cases of illness by principal causes, and medical and surgical services rendered. These data are summarized, and a tabular record is returned to the plantations.

As an example of the scale on which this work is carried on, in 1934, 8 plantations on Oahu having a population of 37,658 persons, spent for operating the free medical, hospital, and public health services a total of $206,927, in addition to $175,955 for sanitation and various other public services.

WAIALUA EXPERIMENT

On the invitation of the manager of the Waialua Agricultural Company, a special study of health conditions in the Waialua district was conducted during the summer of 1935.* This study illustrates the health problems of the plantations and opportunities for future development. It is customary for the plantations to conduct through the H.S.P.A. experiments for the improvement of business methods or of welfare conditions, such as housing, and for this purpose one or more plantations are selected. If an experiment on one plantation offers practical suggestions for advancement, the plan is generally adopted by the others. On the Waialua plantation, an experiment is in progress to determine the best methods of improving the economic and social conditions of the people in a typical rural district, so that these people will prefer to live in this rural district rather than in the city. The experiment is being conducted through a comprehensive organization of the community known as the Waialua Community Association, of which some 20 organizations in the district are members.

The area of Waialua is about 200 square miles, the village being located in the center of a U-shaped coast line. The activities of the district are agricultural, the chief products being sugar cane and pineapples. In addition, there are incidental crops of bananas, vegetables, avocados, besides some raising of poultry and swine. There is considerable subsistence fishing off shore. The cane and pineapple lands are under corporate control. There is practically no homesteading or small farm ownership of these valuable lands, which constitute the basic natural resources of the district. Most of the water is similarly controlled, being both impounded in great gulch reservoirs and pumped from artesian wells.

HOSPITAL AND STAFF

The hospital has a capacity of 36 beds and includes a dispensary. The hospital staff consists of the plantation physician, 2 graduate nurses, one of whom spends about 80 per cent of her time in field visits (for welfare and public health purposes), a nursing assistant and interpreter, 5 attendants, and a clerk assistant. Two camp policemen make sanitary inspections in addition to the attention given to sanitary problems by the field nurse. Consideration is being given to the employment of another field nurse with special training in public health.

The Territorial Board of Health staff coöperates in the public health work of the plantation and provides nursing, baby conference, tuberculosis clinic, and inspection service for the outside area. The Department of Public Instruction directs health education and dental work in coöperation with the Board of Health.

THE PEOPLE

The people of the Waialua Agricultural Company represent approximately one-half of the population

* Appreciation is expressed for the assistance received during the course of this study from John Midkiff, Manager, and Dr. A. L. Davis, Physician and Surgeon of the Waialua plantation, and from Dr. Frank Midkiff, Director of the Community Association.

TABLE I

POPULATION OF WAIALUA PLANTATION ACCORDING TO RACE, SEX, AND CHILDREN

Race	Total			Ratio Men to Women	Per Cent		
	Men	Women	Children		Men	Women	Children
Filipino	906	139	962	7:1	53	21	55
Japanese	516	313	382	1.6:1	30	49	22
Portuguese	119	105	195	1:1	7	16	11
Korean	42	29	96	2:1	2.5	4.7	5.5
Anglo-Saxon	40	31	45	1.3:1	2.5	4.8	2.5
Porto Rican	23	18	48	1.3:1	1.5	3.0	3.0
Others	38	15	30	2:1	3.5	1.5	1.0
Total	1,684	650	1,758	2.6:1	100	100	100

residing in the Waialua District. In the Waialua District as a whole, which is the fifth precinct of the fifth representative district, in 1930, there were 8,129 persons, of whom 5,210 (64 per cent) were males, and 2,910 (36 per cent) females. The plantation census as of June 30, 1934, showed a population of 4,461, of whom 3,310 were living in family groups and 1,151 were single. On the basis of 616 families, there were 5.3 persons per family. A total of 470 men, 248 women, and 1,797 children were classed as citizens.

The plantation census of February 11, 1935, revealed 4,092 persons in the villages of the company. Of these, 1,684 (41 per cent) were men, 650 (16 per cent) women, and 1,758 (43 per cent) children. The wives numbered 510.

The population was divided as to race as shown in Table I.

The public health problems of a

Plantation doctor and nurse receiving the laborers and members of their families at one of the village dispensaries.

From Ewa Health Center Report. Kindness of Castle & Cooke, Ltd.

A corner of the nursery at a plantation health center. Mothers who work for the plantation have the privilege of leaving their babies under a trained attendant during the day. A nominal charge is made for food only.

community with the above composition are somewhat different from those of the average city, county, or district because of the large proportion of men of young and middle age, together with a fairly large number of young children.

The 1,066 houses on the plantation have an average of 2 bedrooms each, varying from 1 to 4. Most of the water supply is derived from artesian wells, with public connections to the houses. There are 38 cesspools, 90 septic tanks, and 880 privies. Plans for sewage disposal for the new homes are being developed in coöperation with the Territorial Board of Health. The milk supply is obtained from a tuberculin tested herd of a modern dairy, where consideration is being given to pasteurization.* Considerable canned milk is used by plantation families. Milk is furnished to laborers in the field during harvesting time, and to the schools and kindergartens.

* It is noteworthy that 4 of the plantations on the island of Kauai have provided pasteurized milk for their employees.

HEALTH RECORD

During the years 1933 and 1934, there were 191 births in the district, of which 103 occurred among plantation personnel. During the first 7 months of 1935, 64 per cent of the plantation births occurred in hospital as compared with 50 per cent in 1934, and 42 per cent in 1933. Deliveries by an "informant," which were especially common among Filipinos, have shown a marked decrease in favor of hospitalization. But both the Filipinos and Japanese frequently employ midwives. For several years the plantation physician, the nurse, and the interpreter have stressed the importance of proper care at time of delivery, and

their efforts are bearing fruit. The birth rate is very high among these families, one-third of the wives having been confined within a recent 19 month period, the proportion being nearly 50 per cent for the Filipinos and Porto Ricans.

Among the plantation population, during 1933 and 1934 there was an average of 24 deaths each year, 16 of which were of infants under 1 year of age.* Deaths of infants among Filipinos are abnormally high, due to causes associated with early infancy and feeding. In contrast, the Japanese, with a similar number of births, have a highly favorable rate. During 31 months, the infant mortality rate for the plantation was 85 (44 neonatal), the rate for the Japanese being 19; for the Filipinos, 185.

A study of the deaths from all causes on the plantation indicates that the leading causes which offer most opportunity for additional public health work are those related to early infancy, gastroenteritis, beriberi, pneumonia, and tuberculosis. The last two are problems of considerable importance among the laborers themselves, while the others relate to the health of their families and have both a direct and an indirect influence on the work of employees. The absence of deaths from acute communicable diseases of childhood since 1931 is noteworthy. There was no death of a child of school age from any cause during 1932–1935. Most of the preschool children have been given prophylactic injections against diphtheria and smallpox vaccination, and many of the plantation personnel have been given anti-typhoid vaccine. It is proposed to give anti-typhoid vaccine to families routinely upon employment. The problem of nutrition and feeding stands out prominently as a factor in the impressions gained from both morbidity * and mortality rates. Furthermore, in view of the health and welfare problems, consideration is being given to the furtherance of contraception and sterilization measures where indicated in individual cases.

Tuberculosis is recognized as an important industrial and public health problem, especially among the Filipinos and Hawaiians. In 1935, there were 35 known cases and 135 contacts among plantation personnel, with 12 new cases hospitalized. One of 2 chest clinics operated in the district is for plantation personnel. A tuberculosis survey of 7th grade school children was conducted in 1934–1935 in coöperation with the Board of Health. Of 200 children (chiefly plantation) given tuberculin tests, followed by X-ray examination of positive reactors, 1 was found to have tuberculosis and was admitted to the sanatorium. Two other children were classed as suspicious and placed under active medical and nursing supervision.

The plantation physician conducts laboratory work at the hospital, in addition to the examinations of milk and water and diagnostic specimens by the Territorial Board of Health.

Prenatal medical supervision is given to over half of the cases of pregnancy by the plantation physician who also conducts child health conferences at 3 camps. In addition, children are weighed at home in connection with nursing advisory visits.

There were some 1,600 school children in the entire Waialua district at the time of the 1934–1935 census. The plantation physician examines all entering school children each year, vaccinates any children not previously

* In 1934, there were 6.1 deaths per 1,000 population, the rate for 38 plantations being 6.5. The rate for Filipinos was 9.1.

* In 1934, there were reported to the plantation physician 209 cases of communicable diseases, besides 36 cases of diarrhea and enteritis (23 under 2 years), 2 cases of beriberi, 25 cases of pneumonia, and 144 cases of other acute respiratory illnesses.

protected, and examines children referred by the teacher or nurse for special purposes. School nursing is rendered by the Board of Health nurse in the district.

SUMMARY

The Hawaiian Sugar Planters' Association and the individual companies recognized many years ago the value of attention to the health and welfare of the employees and their families. The Waialua Agricultural Company, Ltd., has studied the health, education, and welfare problems of the people living on the plantation with a view to future program planning. The people of the plantation are fortunate to have the benefit of a complete medical treatment program, including free diagnostic and hospitalization service. A new hospital will soon be erected, and the public health nursing service will be extended in coöperation with the Board of Health. Meanwhile a comprehensive education and recreation program is being developed in which health education will play a prominent rôle.

New sugar plantation hospital with modern facilities. Waialua Agricultural Company, Ltd.

Emancipation of Women

NOW may we turn to athletics and physical culture. For some years I have been investigating the effects of athletics on women and I am convinced of two things: (a) that physical exercise is as good for women as it is for men: (b) that excessive exercise is more harmful to women than to men. The difficult point to determine is where to draw the line. In recent years girls have been increasingly encouraged to take up different forms of exercise, and there is every indication that the Government intends to foster this movement. It therefore becomes increasingly important to have clear and definite ideas as to what is good and what is harmful. It must of course be axiomatic that nothing can be good for a girl's body which renders her less capable of motherhood. So far as I have been able to discover athletics are no more likely to cause heart trouble or any extra genital physical disability in women than in men. I am further of the opinion that exercise by itself has no harmful effect on childbearing. The idea that over-development of the abdominal musculature is disadvantageous is the direct contrary to the truth. The important points which remain to be determined are whether violent exercise exerts any effect on the development of the uterus or on subsequent fertility.—Geoffrey W. Theobald, M.D., Some Effects of Emancipation on the Health of Women, *J. State Med.*, XLIV, 6 (June), 1936.

Practical Methods of Testing for Mastitis

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"THE highly developed mammary organ of dairy cows is particularly liable to a number of diseases which are less common in the types of cattle in which selective breeding has not been so intensively directed toward udder refinement and functional capacity." "Streptococcic mastitis, the most common and formidable of udder infections, a chronic insidious and readily transmissible disease, usually results in serious permanent udder impairment." These quotations from Leunis Van Es tell nearly all we know of the etiological factors of the prevalent type of mastitis of cows.

The study of this important type of mastitis which affects approximately one-third of the actual milk production, begins with Nocard and Mollereau in 1884,[1] followed by workers from all countries where dairying is an important industry. The results presented in this discussion have been collected over a period of 10–15 years in Germany, Austria, Spain, and later in Canada and the United States. The author[2] presented the first description and report on this continent of *Streptococci agalactiae* being found as the etiological agent of mastitis in Canada, together with the description of many of the methods actually used for the detection of this disease.

The publications on this disease during the last 10 years discussing its frequency, economic importance, diagnosis, etiology, prevention, and treatment are considerable. Of the more comprehensive studies of the disease, reference should be made to the work of Seeleman,[3] Klimmer and Haupt,[4] Rosell,[5] Whalley,[6] and recently Petersen and McCaster[7] containing a bibliography of more than 2,000 papers, Arne Hansen,[8] Hopkirk,[9] and also Steck.[10]

In this paper only a summary of the methods in general used for detecting the disease will be discussed.

The great number of publications on this question during the last 4–5 years, with diverse and opposing opinions, may bring confusion and cast doubt on the diagnostic value of the different tests proposed. In reality the diagnosis is not as difficult as might appear from the academic rather than practical discussions over the relative efficiency of these diagnostic methods. There may be some difficulty in understanding the etiological mechanism of this form of mastitis, but by the study of the physio-pathological or functional symptomatology there has been found the basis which permits the accurate diagnosis of nearly every case of the disease. This is accomplished by testing the function of the gland through the milk. Also physical examination affords the basis for an anatomical or clinical

diagnosis in very many cases if the infection is followed by anatomo-pathological changes, noticeable by expert manual palpation.

METHODS OF DIAGNOSIS

The following discussion deals with establishing the basis for an efficient diagnosis of every case of mastitis, since one of the main objects of the examination of cows from the public health standpoint is to detect every diseased, or better, every infected cow, which could be a source of infection for other animals or for man.

Three bases may be used for the diagnosis of pathological changes in the mammary gland, *viz.*, (a) the presence of the organism, which may be pathogenic for animals or men—this may not mean mastitis in the sense of considering as diseased only those cows showing clinical evidences; (b) the functional alteration which means secretion of abnormal milk, which ordinarily means mastitis in the ordinary clinical concept of the disease; (c) determination of the existence of anatomo-pathological changes perceptible by physical exploration which permits the detection of an anatomical form of mastitis, of the active type if accompanied by histological reactions. In other cases anatomical changes may be the cicatrices of a completely cured mastitis of no importance to public health or to farm prophylaxis; or else an idiopathic hypertrophy of the connective or mesenchymal tissue.

From the standpoints of public health and animal hygiene, which cannot be separated one from the other, the detection of the infection (a), as well as functional alteration (b), are the most important. The physical examination (c) is also a very important aid in diagnosis, if taken with its natural limitations. It should not in itself be accepted as a diagnostic procedure but should be considered in its relation to presence of infection and the secretion of abnormal milk.

RELATIVE VALUE OF DIAGNOSTIC METHODS

On reading the many publications on mastitis which have appeared in the last 4–5 years, it seems difficult to obtain a concrete opinion on the relative value of the methods of diagnosis from any of the concepts concerning mastitis, especially as to etiology, diagnosis, and therapy. Opinions of authors in this respect vary widely. This may be attributed in part to different findings, and to the possibility that different types of the disease may be present in different countries and circumstances. However, the results of the leading dairy bacteriological and veterinary institutions of this country and abroad are in complete or near accord, at least as to the diagnostic points of the disease. This concordance is especially obvious in the results of the institutions of the European countries, particularly those obtained in Germany, Switzerland, France, Austria, Scandinavia, and Denmark, where the problem of chronic streptococcic mastitis has been studied since 1910. These results are also very similar to those recently published by some important English, American, and Canadian institutions.

The estimate of the value of the various methods discussed in the present survey is based on results obtained in the above institutions in many of which the author has had the opportunity of working; and also on results secured during 8 years in this department and 4 months in the Bureau of Animal Industry in Washington, in cooperation with Dr. W. T. Miller.[11] The results confirm in most essential points those of the important milk institutions to which I have referred.

Bacteriological methods—Reference is made especially to the streptococcic or micrococcic forms of mastitis which

constitute the ordinary type of udder infection which are considered nearly exclusively in the mastitis campaigns at present going on in all countries. The more occasional infections of the udder (tuberculous, staphylococcic, colic, pyogenic, bacilloses, actinomytic, etc.), and also infections with the so-called *Streptococcus epidemicus* or beta hemolytic infection of the udder pathogenic for man, are not considered in this survey. The diagnosis of these is based upon the same methods or principles as those used for agalactiosis, or the *Streptococcus agalactiae* form of mastitis which, from a clinical standpoint, may often be present in an acute form.

Although in many cases the microscopic or cultural examination may be positive without other evidences of infection, the positive finding of the organism supposed to cause streptococcic mastitis or agalactosis should be one of the principal objectives of milk examination.

Besides the ordinary culture on blood or nutrient agar, some special methods are used for a better cultivation of *Streptococcus agalactiae i.e.*, the Klimmer serum-alkali-albuminate-saccharose brom-cresol purple agar plates [12]; Edwards [13] glucose 5 per cent serum agar containing 1:200,000 crystal violet to prevent growth of staphylococci, or 0.1 per cent blood asculin 1 per cent Lenko agar containing crystal violet; or Bryan's [14] liver infusion broth agar containing 1:110,000 brilliant green or gentian violet; and the Steck milk serum-dextrose deep agar method in special test tubes.[15]

For the technic of these methods and other questions of bacteriological testing, reference should be to the original papers or to other publications given in the attached bibliography. The author [16] earlier discussed many of these problems of testing for mastitis.

It should be stated here the Streptococcus connected with mastitis was first described by Nocard and Mollereau in 1884 [1] with all the precision that was possible at that time. Later, in 1890, it was described by Guillebeau and Hess,[17] and in 1894 as *Streptococcus agalactiae* contagion by Kitt.[18]

Since that time, the names *Streptococcus mastitidis* and *Streptococcus agalactiae* have been used interchangeably for this species of streptococcus. The characteristics given by Bergey [19] do not agree with those for 15 years universally accepted as typical for this streptococcus, which never ferments raffinose or inulin and very seldom mannitol; nor does it give a yellow surface fluid in litmus milk as stated by Bergey.

Cultural differentiation of *Streptococcus agalactiae* from closely related types is not difficult. The most important cultural characteristics of *Streptococcus agalactiae* or *Streptococcus mastitidis* are its ordinary flocculent aspect with clear supernatant media in lactose nutrient broth, and its non-beta hemolytic properties, and with generally an alpha, alpha prime, or gamma type of hemolysis. This streptococcus never produces a typical hemolysis of the washed blood corpuscles either under aerobic or anaerobic conditions, or the hemolysis in blood disk agar test described by the author, which consists of placing a small disk or piece of blood agar in a 15–18 hours old serum broth culture and incubating for 24 hours. In regard to hemolytic tests, the differences of opinion based on the work in different laboratories, may be due to the dissimilar technics and interpretations, as I have recently observed on a visit to many European institutions. Some even considered as a beta hemolytic those forming the smallest clear zone of less than a millimeter in diameter around colonies.

Other more important cultural char-

acteristics of *Streptococcus agalactiae* are a typical acid coagulation of litmus milk with sometimes a small reduction of the litmus at the bottom of the tube in 18–28 hours although ordinarily no reduction is apparent, no curdling of milk containing 1:20,000 of methylene blue; ability to hydrolyze sodium hippurate in 4–6 days; a final H-ion concentration of below pH 5.0 in glucose or lactose broth after 5 days, and a fermentation of sucrose, lactose, maltose, salicin; but not of mannitol, raffinose, arabinose, or inulin. These are the most important cultural characteristics which differentiate this type of bovine from all other streptococci. In a study of more than 400 strains isolated from separate quarters of diseased udders in Canada and at the Bureau of Animal Industry in Washington,[11] and in a comparative study of 208 strains of human, animal, and milk streptococci made at McGill University, it has been found easy to differentiate clearly between the *Streptococcus agalactiae* and other streptococci although strains giving some atypical cultural reactions were often encountered.

For the bacteriological test in mastitis, microscopic examinations of smears, especially those made from individual samples, aseptically taken and incubated, or, better, from centrifugated incubated samples, is often sufficient. The presence of leucocytes in numbers ranging approximately over 200,000 per c.c. of milk (1 in every 2 fields of 0.16 mm.) should make one suspect mastitis. This is in accordance with Udall and Johnson,[20] Ernst,[21] Hucker, Trudel, and Jennings.[22]

For streptococci to be found on a smear it is necessary that a relatively great number of chains be present in the milk, or that an impracticable amount of time be employed for their detection. In order to find a chain of streptococci in 100 fields, there must be, according to Steck,[15] at least 2,000 chains in 1 c.c. of milk. Culture offers a greater possibility of positive finding, but unfortunately streptococci are not detected by a single examination in all cases of streptococcic mastitis. The chances of culturing streptococci depend on the number present in milk and their biological condition. In using a loop of milk spread over an area of 2 mm., there should be at least 1,000 organisms in 1 c.c., all capable of growth in order to obtain 2 colonies and, in addition, the organisms must be equally distributed through the milk.

The etiological cause of the disease may not be found in diseased quarters on some days or periods of the disease, or even in some part of any single milking, and, in addition, they may be found occasionally in udders without any demonstrable functional or anatomical abnormality.

The functional diagnosis—The functional diagnosis, or the study of the physio-pathological alterations or disturbances is very much more efficient than the anatomical or even histopathological, diagnostic considerations.

In view of the fact that the functional diagnosis of mastitis, or the testing of its physio-pathological alterations or abnormalities, affords a more certain method of detecting the disease in its different degrees of intensity, than the anatomical examination does, this functional diagnosis should have preference, though the physical examination of the udder must not be neglected.

The detection of the inflammation of the udder through its functional disturbances by means of the many biological, chemical, physical, or physicochemical tests developed in the last 20 years, has the advantage of revealing the disease in many cases before the anatomical changes may be noticeable, at least by exterior examination, and even before histological changes may be perceptible. This functional diag-

nosis has also the advantage of measuring to a certain extent the degree of the disease, and even of approximating the border line between normal and pathological, which is still a matter of discussion. Also, only with the physiopathological diagnosis is it possible to differentiate between a carrier without mastitis and a diseased udder.

The functional diagnosis of mastitis is made by the determination of the abnormality of the milk or udder secretion; by testing the milk with test substances which will detect any change in its quantity and composition, depending upon whether the gland is normal or diseased or even in certain cases upon the general condition of the cow to which the gland gives a reflection as shown by Little and Jones.[23]

In mastitis not only is the quantity of milk reduced, but the quality is changed in chemical, biological and other aspects. The most commonly used tests for mastitis are based upon the determination of some of these alterations, the most important of which are given in the order in which we believe they can be most readily utilized for a practical and rapid diagnosis: (1) chloride increase detectable by field or laboratory tests; (2) catalase increase, detectable by field or laboratory tests; (3) decrease in H-ion concentration, detectable by field or laboratory tests; (4) cell increase, demonstrable by the leucocytic examination or by the microscopic sediment test; (5) diminishing of the sensibility to rennin, and appearance of soft curd; (6) presence of streptococci or pathogenic bacteria in incubated or non-incubated aseptically taken milk samples; (7) lactose decrease demonstrable by field or laboratory tests; (8) presence of clots as shown by the black cloth filter or strip cup tests; and (9) visible abnormalities or changes in the milk.

Other alterations in the milk which are not of as much practical importance for diagnosis are: fat decrease; effect on character and amount of casein; increase in heat coagulable albumin; decrease in solids not fat; decrease in specific gravity of serum; decrease in amount of ash; decrease in calcium and potassium; increase in sodium; decrease in electric conductivity; decrease in viscosity, and increase in per cent of water.

From the above outline we can see that milk substances elaborated by the glandular cells are decreased in the diseased udder, while those due to inflammatory reactions (chloride, leucocytes, catalases, etc.) are increased. The chemical and biological tests should be considered as more practical and effective for diagnosis than the bacteriological procedures.

All tests, especially the chemical and biological, give their best diagnostic results when employed on the milk of individual cows, preferably milk of separate quarters, and in fresh milk, except the chloride test which can be used in old milk.

Chemical alterations cannot be detected so well by studying the mixed milk of the 4 quarters as by testing the milk of each quarter, as frequently only 1 or 2 of the quarters may be infected. Because of this, diagnosis on mixed milk cannot be taken as definite. Although it is very important that the tests be carried out on the milk of each quarter separately by the use of certain tests, mastitis may be detected in some cases in mixed milk, if this milk contains approximately 10 per cent of milk from diseased udders.

One of those listed as the more efficient tests may suffice, if clearly positive, to establish the diagnosis, but no one alone is 100 per cent efficient, and the accuracy of the diagnosis increases by using simultaneously 2 or 3 tests.

Other biological and physico-chem-

ical tests have been given to differentiate normal from abnormal milk secretion as: freezing point depression; refractometer index; simplified molecular constant; and also, as a more or less indirect bacteriological test, the reductase test and certain serological tests, such as agglutination, complement test, etc. Many enzyme tests such as per cent of amylase, peroxydase, and the retarded rennet coagulation have been recommended.

For rapid and efficient work, the order in which it is recommended to proceed to test a herd for mastitis, including every quarter, is the following: (a) pH with brom thymol blue; (b) rapid catalase with 9 per cent hydrogen peroxide; (c) rapid chloride test, and after or before this test, (d) the black sieve cloth test, and (e) palpation and clinical examination of the udder.

With these 5 tests, but especially with the first 3, it is possible to find all, or nearly all, the diseased cows; and one person alone, or with a helper, may test in this way approximately 15 cows per hour.

After these tests, samples should be taken from the doubtful and such other cows as may be desired and more extended laboratory tests made. The comparative quantity of milk in different quarters by milking out and measuring should also be determined.

The samples for bacteriological examination should be taken aseptically, immediately cooled, and kept on ice. The technics for the tests, especially those of more practical value, as the pH, catalase and chloride, are given in a great number of other publications, and also have been summarized [14] in an earlier discussion.

The comparative value of the biological or chemical tests has been widely discussed with nearly unanimous agreement among many institutions, and dissent among many others.

These opinions can be summarized as follows:

The catalase and chloride tests are the most effective in finding cases of diseased udders according to function: we may say 98 per cent of the cases, if used simultaneously. The pH appears capable of detecting 80–85 per cent of diseased cows in some herds, especially if repeated on different days and hours, but in certain herds the per cent of detection by this method may be somewhat less.

With the simultaneous use of these tests, repeated if necessary in doubtful cases, it is possible to detect nearly 100 per cent of the diseased cows, even those only slightly diseased, although the exact border between the normal and pathologic has not yet been established.

The leucocyte count, and especially the bacteriological test, may give the lacking information in some special cases. The black cloth sieve test is useful only for cases where abnormal visible particles are present, which is not more than 10–20 per cent.

These tests may confirm the clinical examination or palpation test. Sometimes an abnormal palpatory finding, may be present without demonstrable infection. In these cases only the functional diagnosis can decide the existence of physio-pathological disturbance of the active disease.

The clinical or external examination —The importance of clinical examination is very great for many forms of mastitis. It includes history, all possible exterior examinations and observations on the general health of the cow, glandulary infarct, edema, local sensitiveness of the udder, and visible changes in the milk. Some changes in the milk can be detected by taste. The most important of all these clinical explorations is the skilled superficial and deep palpation after the quarters have been completely milked out.

The udder examination, although requiring more time because of the necessary emptying of the udder, should, if possible, be practised in every field test for mastitis.

The value of the physical examination is sometimes exaggerated, and it would do great harm for diagnosis and the detection of the greatest number of cases of mastitis if it were considered alone sufficient. Palpation should never be considered equal in diagnostic value to the combined bacteriological and biological tests or even alone, or to the biological or functional tests which are indisputably the most efficient methods of diagnosis at our disposal.

In the testing, during 8 years, of some thousands of healthy and diseased quarters, most of them examined physically at some time by the same principles of palpation used for many years in human medicine, the impression has been gained that it can never give the definite diagnosis obtained by biological and bacteriological testing. In studies carried on in the Bureau of Animal Industry with Dr. W. T. Miller,[11] 280 quarters were examined, of which 232 (82.8 per cent) were found to be abnormal. The number of quarters found to be diseased were positive to the individual tests as follows: chlorine test 192 (82.7 per cent), catalase test 167 (78.6 per cent), brom thymol blue test 69 (30 per cent) (in this case the pH value showed less efficiency than in many other circumstances); macroscopic and microscopic sediment tests 137 (69.5 per cent), palpation of the udder 151 (65.6 per cent), and the black cloth test 15 (6.0 per cent). Streptococci were present by only one examination in 94 (41 per cent) of the diseased quarters; they were also present in 10 (21 per cent) of the 48 quarters which failed to react to any of the tests, but in a second test many of these failed to show streptococci. This was the herd of a public institution where the mastitis and also the abortion have been prevalent for a long time.

SUMMARY

In view of the facts given, it is concluded:

1. The palpatory and clinical examination are not able to detect all the cases of mastitis.

2. The biological method of testing is the most accurate for the diagnosis of mastitis.

3. In consideration of the importance for the sanitation of a herd and for a successful campaign against mastitis, correctly used palpation and inspection, although very valuable, should be employed in conjunction with the biological and chemical and, if possible, bacteriological mastitis diagnostic tests.

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American Sewerage Practice

". . . The twenty years which have elapsed since the publication of the second edition have witnessed some striking developments in sewage disposal. The activated sludge process, which was then in its experimental stage, has made great headway and now occupies a foremost place among methods of sewage treatment. The digestion of sludge in separate tanks is now widely practised, and forms the subject, particularly in America, of an enormous amount of research. Of late years there has been a marked revival of interest in the chemical treatment of sewage, and new modes of precipitation have been introduced which, though as yet in the experimental stage, have attracted favourable notice in many quarters.

In the course of the past twenty years the purification of sewage has made great strides in America. In 1915 only 3,900,000 people, 4¼ per cent of the population of the United States, lived in towns provided with sewage works. Treatment, more or less complete, is now given to the sewage of 20,000,000 of the people who inhabit cities having populations of 100,000 or over. From the point of view of the American engineer, the delay in putting schemes of sewage treatment in hand is not without its advantages. He starts with a clean slate, and he has the benefit of all the experience which has been gained in England and elsewhere. Usually too he has a free hand in the design of his works.

The sewage from 16,900,000 people is disposed of by dilution alone, and that from 8,500,000 by fine screening and dilution. The self-purification of polluted rivers has been closely studied in America, and seventy-five pages of the book are devoted to a consideration of the subject in all its bearings. Where sewage is discharged in the vicinity of bathing beaches or sources of water supply, chlorination is usually resorted to."—Excerpt from review in *J. Roy. San. Inst.* (Supp.), July, 1936, of *American Sewerage Practice*—Vol. III. *Disposal of Sewage*, by Leonard Metcalf and Harrison P. Eddy.

Adaptation of a Proposed Standard Methods Medium to General Bacteriological Culturing

Preliminary Report

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THE desirability of using one simple, inexpensive, easily prepared, and readily available basic medium for different types of bacteriological culture work prompted the investigation of the suitability of a proposed Standard Methods milk medium.[1, 2, 3] This medium is composed of 0.5 per cent hydrolyzed casein—Tryptone,* 0.1 per cent glucose, 0.5 per cent fresh skim milk, and 1.5 per cent agar. Casein † and its various digestion products have been used previously in general culture media and for specialized studies of bacterial nutrition, toxin and indol production, and agglutination.

Separate studies were made to compare slight modifications of the proposed milk medium with special culture media in routine use for growing beta hemolytic streptococci, pneumococci and stock cultures and for some miscellaneous culture studies. Individual attention is given each of these subjects below.

BETA HEMOLYTIC STREPTOCOCCI

A comparison of the incidence of growth of beta hemolytic streptococci on tryptone blood agar and peptone beef extract blood agar plates was made with 553 swabs. The swabs used were those received routinely for examination of *Corynebacterium diphtheriae* with a request for an examination for beta hemolytic streptococci. The swabs were streaked first on the routine blood agar plates and then on the tryptone blood agar plates. After 18–24 hours' incubation at 37° C., the plates were examined for the presence of beta hemolytic colonies. Of the 553 swabs used, 113 (21 per cent) showed beta hemolytic colonies on the tryptone agar, and 95 (17 per cent) were positive on the beef extract agar. Seventeen swabs were positive on the tryptone and not on the beef extract, and 3 swabs were positive on the beef extract and not on the tryptone. One culture on the tryptone and 10 cultures on the beef extract were indefinite after 24 hours, and further incubation was necessary before complete hemolysis was observed. The colonies were of equal size on both media and the zone of hemolysis was equally clear.

For this study the original formula of the tryptone medium was modified by the omission of the skim milk and the addition of 0.5 per cent sodium

* Prepared by the Difco Laboratories, Detroit, Mich.

† See bibliography.

chloride. The routine medium was Standard Methods agar with 0.5 per cent sodium chloride. Both media were adjusted to pH 7.4 sterilized at 15 lb. for 20 minutes, and before use 5 per cent defibrinated sheep blood was added to each medium, and the poured plates were incubated 24 hours for sterility.

PNEUMOCOCCI

Specimens received for routine pneumococcus typing were streaked on one tryptone blood agar plate and one Douglas[20] blood agar plate and incubated 18–24 hours at 37° C. The plates were examined for numbers of colonies present, their size, and characteristic appearance. Both plates were then left at room temperature and the appearance of the colonies observed daily for 3 successive days.

The numbers of colonies appearing on both plates were comparatively the same. In several instances the colonies were slightly larger, and in some instances slightly more moist on the tryptone agar, colonies usually remaining more moist at room temperature a day longer.

Pure cultures of pneumococci inoculated into tryptone broth grew well enough in 6 hours to be used for Neufeld typing.

The tryptone agar was modified for this study by increasing the tryptone and skim milk content to 1 per cent each, adding 0.5 per cent sodium chloride, adjusting to pH 7.8. After sterilization 7 per cent defibrinated sheep blood was added, plates were poured, and incubated for sterility.

STOCK CULTURES

A group of 150 stock cultures were transferred from routine media to tryptone agar slants. These cultures had been carried on various media believed to be necessary for optimum growth of certain different species which do not grow readily in ordinary media. No modification of the original formula of the tryptone medium was made but the hydrogen-ion concentration was adjusted for certain fastidious organisms. Sub-cultures from stock cultures that had been stored in the refrigerator from 2 to 3 months were made, incubated at 37° C., and observed at 15, 24, and 48 hours. Good growth was observed after 15 hours, and luxuriant growth after 24, except in the case of one strain of *Proteus vulgaris* which did not grow well at 37° C., but which showed good growth at room temperature.

Following these preliminary observations the sub-cultures were placed in the refrigerator for 3 months, subcultured at the end of this period, and observations repeated. All cultures maintained their viability. The following 150 stock cultures were used: *Brucella melitensis* (6 strains), *Br. abortus* (14), *Br. Sui* (7); *Eberthella typhosa* (16); *Salmonella schottmuelleri* (6), *S. aertrycke* (5), *S. enteritidis* (6), *S. suipestifer* (1), *S. morgani* (3), *S. paratyphi* (1), *S. hirschfeldii* (1); *Shigella dysenteriae* (2), *Sh. paradysenteriae* varieties *Army, Flexner, Hiss, Strong, Harris, Sonne* (35), *Sh. alkalescens* (3), *Sh. dispar* (1); *Proteus vulgaris* (19), *P. hydrophilus* (1); *Bacillus anthracis* (1); *Serratia marcescens* (1); *Pasteurella tularensis* (1); *Escherichia coli* (1); *Pseudomonas aeruginosa* (1); *Actinobacillus mallei* (2); *Staphylococcus aureus* (2), *S. albus* (2), *S. citreus* (1); *Streptococcus stenos* (1), *Str. faecalis* (5); *Vibrio comma* (2); *Monilia candida* (2), and *Blastomyces* (unclassified) (1).

MISCELLANEOUS CULTURING

1. *Corynebacterium diphtheriae*—Tryptone broth (tryptone 0.5 per cent, glucose 0.1 per cent, fresh skim milk 0.5 per cent, pH 7.4) was substituted for the nutrient broth in Loeffler's blood serum medium and inoculated

with positive routine throat cultures of *Corynebacterium diphtheriae*. Luxuriant growth was obtained by overnight incubation at 37° C. and morphologically typical organisms were found upon microscopical examination.

2. *Neisseria intracellularis from a suspected case of meningitis*—Spinal fluid submitted for cultural examination was streaked on a tryptone blood agar plate as above referred to in the isolation of pneumococci and the plate was incubated at 37° C. for 24 hours. Typical colonies of *Neisseria intracellularis* were secured. Only one specimen of this type was available.

3. *Mycobacterium tuberculosis*—Six strains of *Mycobacterium tuberculosis* isolated from sputum in 1934 and kept at 37° C. for 13 months on a coagulated egg-yolk medium were inoculated on tryptone glucose skim milk agar slants and incubated at 37° C. Fairly good growth occurred in 5–7 days. Further work on the use of a modification of this medium for the culturing of *Mycobacterium tuberculosis* is being done.

4. *Antigens for Macroscopic Agglutination Tests*—The use of this medium for the production of antigens for use in macroscopic agglutination tests is also being studied and will be reported later.

SUMMARY

The proposed Standard Methods milk medium containing tryptone, glucose and skim milk proved excellent for use in general laboratory culture work. One hundred and fifty cultures of 37 types of organisms grew rapidly and abundantly. Organisms, such as brucellae, pasteurellae, meningococci, and pneumococci which usually are cultured only on special media were observed to grow rapidly on the tryptone medium with slight modification of nutrient material or adjustment of the hydrogen-ion concentration.

The use of digested casein products in bacteriological culture media has been known for several years, and while this simple basic medium is not presented as a solution for all the difficulties encountered in bacteriological culturing, it has been found suitable for many types of routine work as well as for milk plating. Its use eliminates the necessity of having divers media in stock, many of which are expensive and time consuming in their preparation.

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Development of Leprosy Clinics in the Control of Leprosy

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SPECIAL clinics for the modern treatment of those suffering from leprosy are comparatively new in our present-day public health programs. The slow development of these clinics is undoubtedly due to our antiquated attitude toward those suffering from leprosy. Such clinics can at present be developed only in the heart of some leprosy area, as no other place would bring sufficient patients, nor would any public health board allow such clinics to be opened except in such centers. Since leprosy patients are restricted in their movements in practically every country because of society's fear of the disease, it would become difficult even for a leprologist of international repute to start a special clinic in any land except where leprosy is prevalent. Suspected cases not yet definitely diagnosed, who have means wherewith to travel, may be able to visit such leprosy specialists as are found in Hamburg, Bergen, London, New Orleans, Calcutta, Honolulu, Manila, and elsewhere; but leprosy clinics of any size operated as public health control centers could hardly be expected to develop anywhere except where leprosy is prevalent.

TUBERCULOSIS AND LEPROSY COMPARED

The tuberculous patient in any stage of the disease is allowed to travel anywhere. Clinics and sanatoria are not limited to areas where tuberculosis is common. On the contrary, they are usually built where tuberculosis is not common, where the air is rare, where sunshine is plentiful. With the present attitude of society toward leprosy leprosy clinics and sanatoria are only found in leprosy infected areas. In this respect health boards and leprologists probably have still much to learn from those who specialize in tuberculosis. In the United States the states of Colorado, New Mexico, Arizona, and California, with their sparse population, are known for their tuberculosis clinics and sanatoria. Sufferers from all over the United States go to these sunshine states. The same is true of some mountain resorts in the east of the United States. This is not a public health measure to get infective cases out of populated communities, but rather a curative measure to get the best surroundings for the patients.

Such an arrangement might seem to be indicated for leprosy even more than for tuberculosis. Leprologists all over the world have observed that leprosy seems to limit itself to more or less definite sections. There are also areas where leprosy is not found. Just why it does not thrive in some areas is not known, yet this fact seems to be a sufficient reason to think of such areas as fit for the sanatorium care of leprosy. As far as the author knows, no leprosarium is built anywhere in an area known to be free from leprosy. Even

the United States Government has built its leprosarium in the only state where leprosy has been endemic for some generations. Would not some Rocky Mountain state suggest itself as a better location for its national leprosarium?

LEPROSY CLINICS IN HISTORY

In the past leprosy clinics developed at various places owing to varying local advantages. In Japan, for instance, a large leper clinic automatically developed near the hot sulphur springs about Kasatsu, as these springs not only are said to have curative qualities, but are found near the shrine of the lepers' god where hundreds of lepers go each year to pray for the return of their health.

Another group of sufferers gathered about persons reputed to have the ability to cure leprosy. The Old Testament priest had at least the authority to pronounce one clean, and the belief in the "royal touch," or the ability of kings and emperors to cure leprosy seems to date far back in history. Chinese history bears record of men who treated many lepers. Sun-Szu-Miao (A.D. 652) is reputed to have treated 600 cases. It is easy to understand how such a man might have had special clinics to see these people, who already in his day were considered outcasts, and who, therefore, most likely were not treated with other patients. In the province of Kiangsu, China, are found several specialists who treat only leprosy, and who have had their secret prescriptions transferred to them from father to son for several generations. These leprosy specialists, of whom the author knows several, give an extensive treatment of more than 3 months, making it necessary for the patient to come to the doctor over and over, thus developing leprosy clinics at their homes. All through the infested section of Kiangsu, the names and towns of these native leprosy specialists are known, and clinics automatically develop.

The spread of leprosy in Europe during the Middle Ages was undoubtedly due in part to the great movement known as the Crusades, and reacted a bit unfavorably toward the development of leprosy clinics as curative centers. Two extreme attitudes toward leprosy developed during the Middle Ages. On the one hand, fanatics in this already highly fanatic age, craved leprosy as a sign of holiness; while others, equally under the guise of religion, pronounced those suffering from leprosy as dead to society, and after preaching their funeral sermon sent them off to asylums for life. These asylums both in Europe and South America became centers for the treatment of lepers and all through history some medical men have given much thought to the treatment of this disease, developing certain clinics about them.

As a result of the Reformation when thinkers sought to give a reasonable account of their religious beliefs, and with the establishment of modern Christian missions, when men transformed their belief into acts, better days appeared for leprosy treatment. Attempts at the scientific mastery of this baffling disease went hand in hand with sympathetic care of those suffering from the disease. In this combined religious and scientific approach to the disease, hope for the patient suffering from leprosy arose, and large leprosy centers with clinics attached, came into existence in various lands.

A chain of such leprosaria and leprosy clinics now girdles the world and reaches out to every land where leprosy is found. In harmony with the present advanced public health consciousness, forced segregation is giving way to home and clinic treatment. The Orient has many leprosy clinics that make treatments possible

for thousands of patients who would not otherwise be able to receive care in leprosaria. The European countries in which leprosy is still found have likewise leprosy treatment centers. India and the Philippine Islands lead in clinic care.

Japan has not strongly developed the clinic idea for leprosy patients, and even in Taikoo, Korea, where there is one of the earliest and best developed leprosy clinics in the Far East, the Japanese Government now has suggested a retreat in this type of public health control.

LEPROSY CLINICS AND THEIR PURPOSE

Leprosy clinics in the ideal sense are public health centers used to control leprosy. This is done as well in treating the already affected individuals as in preventing the spread of the disease in the non-affected population.

The more we learn about leprosy the more difficult it becomes to draw a clear-cut line between the infected and the non-infective groups. It is now generally agreed that the earliest detected infectious cases have already harbored the infecting bacillus for several months before detected. To set a standard whereby to determine if cases are infected or not seems to be of prime importance. Some workers use the laboratory standard. If a case under repeated examination proves negative, the case is pronounced non-infective and hence not dangerous to society. Another group of workers determines its standard upon clinical observations; and a third group upon a combination of the two. The laboratory method is a purely objective one, and should be a safe guide in every positive case. Negative and doubtful cases, however, should be verified by clinical findings. The laboratory method, therefore, has its shortcomings in both early and late cases. When the disease is well marked clinically, the bacteriological findings are usually positive. The clinical method of determining the infective cases is subjective and hence has its limitations. All clinicians are not equally keen on detecting early leprosy. For the present we shall have to content ourselves with a standard that is based upon both clinical and laboratory findings. Even in the absence, however, of positive laboratory findings, a progressive numbness with anhidrosis, and beginning alopecia and discoloration of commonly affected parts in patients in a leper area should put a physician on his guard.

Once a standard is set for the determination of a case of leprosy, the government has a right, if it decrees that leprosy is a disease dangerous to the public health of the community, to compel positive cases of leprosy to submit themselves to treatment. This treatment must necessarily be free of charge to the patient and most human in all its methods. Segregation in institutions may be necessary in some cases, but must always be looked upon as the most extreme method any government can take in its public health control program.

The first method that suggests itself in modern public health control for leprosy infected areas is the organization of leprosy clinics where patients can go for diagnosis, get treatment, and be instructed in proper preventive measures to protect the non-affected population, and still remain at home. The number of such clinics will depend upon the extent of the leper area and the distances patients will have to go to the clinic. Large central clinics with laboratory facilities and small outlying clinics to bring the clinic to the patients, forming one complete unit, are usually found in large infected areas. The best examples of such clinics are found in India, in the Philippines and in the Dutch West and East Indies un-

der the new government program just recently put into effect.

Although this type of public health control of leprosy is still in its infancy, it promises to become the generally accepted method, as it aims primarily at general public health control along the most up-to-date theories of the prevention of other infectious diseases, is the cheapest method for the wholesale treatment of leprosy patients, and brings the greatest number of patients to the small number of fully qualified specialists that is available in the fight against this baffling disease.

LEPROSY CONTROL CLINICS

In practically every modern country of the world leprosy control is in hands of the national health department. Most countries have definite legislation for the control of leprosy. The various colonial possessions of the European nations have similar legislation. During periods of legislative control, leprosy has been greatly reduced in Europe, and consequently occurs rarely now in these countries. In no part of North America has leprosy ever developed to any alarming proportions.

In Africa and the Orient practically every country with the exception of China is now exercising a definite public health campaign against leprosy. Religious institutions have done their part in first calling attention to the need and giving the first help to the sufferers, but without government health legislation all this work had little value from a public health viewpoint.

The exceedingly progressive public health campaigns carried on by the British Government in India and Africa, the American Government in the Philippines, the Dutch and French Governments in their colonial possessions, have made leprosy control one of the major public health questions now discussed at the International Medical Conferences of the East.

A study of the leprosy control situation in China reveals that with the exception of South China, the government up to the present has not been able to take a firm hand. There is every reason to believe, however, that the National Health Administration of China, under the exceedingly able leadership of Dr. J. Heng Liu will before long set machinery into operation aiming at the control of leprosy in China, the most highly infected country of the world.

For the present most of the leprosy control work in China is in the hands of medical missionaries, largely financed by their home churches, and the British, American, and Chinese Mission to Lepers. Without government cooperation, it is evident, that the work done by these mission institutions is of very limited value from an active public health viewpoint. Religiously, philanthropically, and for propaganda purposes, the value of this pioneer work of medical missionaries cannot be overestimated. Much of this is an attempt to do real scientific work as well as religious and philanthropic, and is gratefully accepted by the government.

Leprosy clinics in China are of two kinds—one group is attached to the out-patient department of the general hospitals, the other is independent of the general hospital. Among the first, very few clinics develop to anything really worth while from a public health leprosy control viewpoint. These clinics are held largely with the purpose of keeping the unwanted leprosy patients away from the other out-patients. Sometimes certain days are set aside, in other cases after-clinic-hours are used for these special clinics. In our survey not less than 80 per cent of the leprosy clinics in China are of the latter type.

The second group of clinics, or those independent of the general hospital out-patient department, are either as-

sociated with leprosaria or are run entirely independently. The latter is more desirable as the clinics set themselves to a task quite different from that of most leprosaria. In our survey we find that clinics associated with leprosaria amount to 20 per cent of the whole, and the independent leper clinics make up less than 1 per cent of all leprosy combating agencies in China.

Of all the leper clinics in China we know of not one whose professional personnel devotes its time exclusively to leprosy.

As to the geographical distribution of the leprosy treatment centers, it is encouraging to note that in each of the 6 large leprosy areas of China some such clinics are found. The distribution is as follows:

LEPROSY TREATMENT CENTERS IN CHINA

Shantung Area	6%
Kiangsu Area (including Chekiang) . .	22%
Kansu Area	3%
Hunan-Kiangsi Area	15%
Kwantung-Fukien Area (largest area)	45%
Yunnan-Kweichow	9%
	100%

It would seem essential in case the National Health Department of China eventually passes legislation to include leprosy control within its scope, to incorporate all these clinics and institutions in its program.

Although the leprosy clinic in Shanghai, operated by the Chinese Mission to Lepers, can at its very best reach only a comparatively small number of patients, since the Shanghai area itself is not a leper area, but harbors several cases that come in from other parts of China, it may be said that this clinic can do very effective work in rounding up all the cases and treating them. The authorities of the various municipalities coöperate with the Mission to Lepers in leprosy control, and the various medical centers are being brought in line to coöperate with the Shanghai Leprosy Clinic in making this clinic accessible for teaching purposes. From various angles, therefore, this clinic becomes one of the most important clinics in China.

The leprosy clinic of Cheloo University Medical School is also largely used for teaching purposes and rates high as an active leprosy control agency in the oldest known leprosy area of China, the Shantung province.

The two largest leprosy clinics, both under mission auspices are one at Swatow under Dr. V. D. Fraser, and another at Jukao, Kiangsu, operated by the Christian Reformed Church of America. At each of these the number of patients attending the weekly clinic has reached 100 or more. Both clinics have laboratory facilities and give the latest in treatment. Both clinics are seeking to develop extension programs into the surrounding countryside.

China is one of the most heavily infected leprosy countries in the world and taking all these clinics together even when they are doing their very best work, it remains to be said of their attempt as of the five loaves and a few fishes to feed a multitude of five thousand, "What are these among so many?"

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Administration of Health Education and Health Supervision in Negro Colleges

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ACCORDING to the Committee on Approval of Negro schools,[1] the enrollment in Negro colleges has increased from 2,637 in 1916, to 26,339 in 1934–1935. Thus, approximately 27,000 persons aged 17 to 21 are in attendance at institutions of higher education for 2 to 4 or 5 years. It is said that less than 1 per cent of the population of the United States is composed of college graduates, and yet more than 50 per cent of the positions of influence and leadership in the life of the people are occupied by college men and women.[2] It may be assumed that if this group of future leaders is made health conscious through good health education and health supervision, they will in turn influence their families and communities and thus help in improving the health of the Negro. It is, therefore, of some importance to know the extent and status of health education in Negro colleges.

A questionnaire dealing with (1) the hygiene teaching, (2) the sanitary supervision, and (3) the health services offered to students during the school year 1933–1934 was sent to 99 Negro colleges. After repeated requests, 40 per cent of the schools responded. As shown in Table I, of the 40 schools, 38 reported an attendance of 11,909 students or about half of the total enrollment in Negro colleges.

TABLE I

ENROLLMENT IN NEGRO COLLEGES

Attendance	*No.*	*No. of 4 Yr. Colleges*	*No. of 2 Yr. Colleges*	*Total Attendance*
50– 99	4	1	3	271
100–299	20	16	4	4,157
300–499	6	6	..	2,283
500 and over	8	8	..	5,198
Attendance not given	2	0	2	....
Total	40	31	9	11,909

Of these 40 schools, 9 were 2 year colleges with an enrollment of approximately 800, since only 7 of these reported their attendance; and 31 were 4 year colleges with an enrollment of 11,131. For the purpose of discussion, the schools have been divided according to attendance. There are 4 with an attendance of less than 100 students; 20 of 100 to 299; 6 of 300 to 499, and 8 with 500 or more students. Thus, the majority of schools are to be found in the second group of 100 to 299 students.

Forsythe,[3] Hughes,[4] and Storey[5] have stated that health education should include 4 phases: (1) Informational Hygiene, (2) Administrative Hygiene, (3) Student Health Service, and (4) Applied Hygiene or Physical Education. In this study we have confined our interest to the status of the first 3 phases.

INFORMATIONAL HYGIENE

Hygiene teaching has become an integral part in the curricula of most colleges. Through lectures, library assignments, laboratory exercises and personal conferences, the student is able to understand the fundamental principles of human physiology, and is better able to comprehend the reasons for the health practices advocated. How is informational hygiene administered in this group of schools? Table II shows that of the 40 schools, 9 have a separate division of hygiene and health education; while in 31, the administration is placed in the hands of one or more departments.

TABLE II

INFORMATIONAL HYGIENE ADMINISTRATION

Attendance	*No.*	*Schools Having Separate Dept.*	*Schools Having Combined Dept.*
50– 99	4	..	4
100–299	20	3	17
300–499	6	3	3
500 and over	8	3	5
Attendance not given	2	..	2
Total	40	9	31

The departments in charge of hygiene teaching are shown in Table III.

Thus, it is seen that approximately two-thirds of the schools have placed their educational activities in the department of physical education and natural science. The 9 schools which reported separate departments of health education stated that they had a total of 29 instructors engaged in hygiene teaching; while 28 of 31 schools with combined departments reported a total of 47 instructors. Of the 76 instructors, 47 had only college degrees; while 25 had done graduate work in some special field. These figures show an inadequacy in personnel both from the standpoint of quantity and quality.

TABLE III

Department Having Charge of Hygiene Teaching	*No. of Schools*
Physical Education	10
Natural Science	10
Home Economics	2
Social Science	1
Education	1
Academic	1
Two or more Departments	2
No data	4
Total	31

Since the emphasis during the past 2 or 3 decades has been on health education, it would seem that one or more courses would be offered by every college. Table IV shows this not to be the case. Of the 40 schools, 34 stated that they offered courses in hygiene, but only 27, or 68 per cent, offered required hygiene courses. Thus, approximately 32 per cent of the schools leave their health education to the whims of the student. The 34 schools

TABLE IV

HYGIENE COURSES

		Courses in Hyg.		*No. Courses Offered*			*Schools Offering Required Courses*
Attendance	*No.*	*Yes*	*No*	*1*	*2*	*3 or More*	
50– 99	4	3	1	3	..	..	2
100–299	20	16	4	9	4	3	13
300–499	6	6	..	2	2	2	4
500 and over	8	7	1	..	4	3	7
Attendance not given	2	2	..	2	..	..	1
Total	40	34	6	16	10	8	27

TABLE V

SEX AND MENTAL HYGIENE

Courses	Schools Responding	No. of Lectures Given: None	2	3	4–10	At Discretion of Teacher
Sex Hygiene	28	8	7	2	8	3
Mental Hygiene	28	9	3	5	9	2

offered a total of 65 courses or an average of 1.9 courses per school; but approximately 50 per cent of this group offered only 1 course. The 27 schools which reported required courses gave a total of 44 courses, 19 of which were offered to freshmen; 2 to sophomores; 2 to seniors, 7 to physical education students; 12 to education and normal students; and 2 to home economics students.

In view of the importance of sex and mental hygiene in the curriculum, it is interesting to note from Table V that practically one-third of the schools do not include lectures on these subjects in their required courses.

The total attendance in these hygiene courses during the school year 1933–1934 is of interest. Of the 34 schools, 30 reported that 2,983 students attended the required and elective courses, 2,518, or 84.4 per cent, attended the required courses, and only 465 students the elective courses. These 30 schools had an approximate total attendance of 8,660 students. The small number in the elective course would seem to be due to lack of sufficient courses, or the inability of the initial hygiene course to stimulate desire for more knowledge of matters pertaining to individual and community health.

SANITATION

The tendency in public health work is primarily to stress individual health promotion, and sanitation has been somewhat pushed in the background. However, sanitation is an important item in college health activities and should always be considered. Of 40 schools, 35 stated that they carried out sanitary inspection. The administration of sanitation in Negro colleges is in the hands of various groups, as seen in Table VI. The work generally falls either on the matrons and deans or on the superintendents of buildings.

Twenty-seven of 35 schools show this to be true. The reports of 17 schools reveal that much of the function of these supervisors is concerned primarily with lighting, ventilation and water supplies in campus buildings. The dormitories in practically all instances

TABLE VI

SANITARY SUPERVISION

Attendance	No.	Schools Reporting	In Charge of Sanitary Supervision: Business Office	Matron or Dean	M.D.	Supt. Bldg.	Faculty Comm.
50– 99	4	4	1	3	..	..	..
100–299	20	17	2	6	..	7	2
300–499	6	5	..	1	1	2	1
500 and over	8	7	..	4	1	2	..
Attendance not given	2	2	..	2	..	..	..
Total	40	35	3	16	2	11	3

TABLE VII

HEALTH SERVICE ADMINISTRATION

Attendance	No. of Schools	Schools Reporting	Health Service Administrators				
			M.D.	Div. Student Health	R.N.	Health Dept. City	Other Groups
50– 99	4	4	4	..	..	..	..
100–299	20	20	10	2	2	2	4
300–499	6	6	3	2	1	..	..
500 and over	8	8	3	3	1	1	..
Attendance not given	2	2	1	..	..	..	1
Total	40	40	21	7	4	3	5

were inspected daily by the matrons or deans; but only 1 school out of 30 periodically inspected houses not on the campus. From the answers to the questions on sanitation, which were rather incomplete, one received the impression that houses not on the campus are considered approved as long as the proprietor is known to be respectable. Respectability seems to be more important than the knowledge of good sanitary practices. In no answer was the examination of food handlers, sanitation of kitchen, etc., mentioned.

As to the sanitary records, there is no unanimity as to where these should be kept. Only 13 of 35 schools kept sanitary records—6 in the business office or that of the superintendent of buildings and grounds; 2 in the president's office; 1 in the state department of health; 1 in the dean's office; 1 with head of the department of physical education; 1 in the division of hygiene and health, and 1 in the city health department.

STUDENT HEALTH SERVICES

The well conducted student health service is a very important factor in the college hygiene program because it serves as the avenue through which the individual is taught certain procedures which will be of importance to him in later life. The periodic health examination, dental examination, defense against quackery, good personal habits are factors which are generally instilled by association with a well organized health service. What is the status of health services in Negro colleges?

The administration of health services is in the hands of a variety of organizations as shown in Table VII. Only 70 per cent of the schools have this activity under the direction of a physician. The others are in the hands of a nurse, a dean, a matron, or in the physical education department. Of the 40 schools, 37 with a registration of approximately 11,000 students employed 117 physicians and nurses, not all on full-time basis. Table VIII shows that 11 schools employed 16 full-time physicians; 29 employed 46 part-time physicians, but most of these were in the capacity of consultants since only 5 schools had both part-time and full-time doctors; 18 had 32 full-time nurses; 12 had 13 part-time nurses, and 4 had 10 consulting specialists. What is more astounding is that 3 of the 40 schools employed neither physician nor nurse during the school year 1933–1934.

It would seem that an entrance physical examination would be a part of every health service, yet only 24 of the 40 schools require this, and in only 18 of these 24 was the examination exclusively performed by the school

TABLE VIII

HEALTH SERVICE PERSONNEL

Attendance	No.	Physicians				Nurses				Schools with No M.D. or R.N.
		Schools Reporting	*F.T. M.D.	Schools Report.	*P.T. M.D.	Schools Report.	*F.T. R.N.	Schools Report.	*P.T. R.N.	
50- 99	4	1	1	3	3	..	..	1	1	..
100-299	20	5	5	16	24	5	7	8	8	2
300-499	6	1	2	4	5	5	8	..	..	..
500 & over	8	4	8	5	13	8	17	2	3	..
Attendance not given	2	..	..	1	1	..	..	1	1	1
Total	40	11	16	29	46	18	32	12	13	3

* F.T. = Full-time; P.T. = Part-time.

physician. The figures for the different groups are shown in Table IX. Of the 16 schools which did not require entrance examination, 9 examined all their students during the first year; 2 examined them occasionally, and 5, or 13 per cent, offered no type of examination. Each of these 5 schools had an attendance of less than 300 students.

The results of the entrance physical examination are very short lived unless attempts are made to discover the effectiveness and the extent of corrections due to the entrance examination. Of the 24 schools which gave an entrance examination, 18 stated that they carried out certain follow-up procedures, 7 sent recommendations to parents, 7 performed reëxamination and again recommended corrections, while 4 sent their students to nearby clinics for corrections or offered treatment to them in their own clinic or dispensary. Thus, only 17 per cent of the schools made any effective effort to improve the status of the apparently healthy student. Figures on the percentage of corrections achieved during the first and second years in 3 of the 4 schools just mentioned are of some significance. Cheyney Teachers' College in Pennsylvania, which sends students to clinic in Philadelphia, stated that 25 per cent of the defects were corrected during the first year and 15 per cent during the second year of attendance. Tuskegee, which rechecks and offers treatment for defects during the semester, shows 25 per cent and 50 per cent corrections respectively; and Hampton Institute, where reëxamination followed by treatment is practised, stated that 75 per cent of the defects were corrected dur-

TABLE IX

HEALTH EXAMINATION

Attendance	No.	H.E. Required		H.E. Performed by		
		Yes	No	School M.D.	Home M.D.	Either
50- 99	4	2	2	1	1	..
100-299	20	12	8	9	2	1
300-499	6	4	2	3	..	1
500 and over	8	6	2	5	..	1
Attendance not given	2	..	2	..	..	..
Total	40	24	16	18	3	3

TABLE X

HEALTH EXAMINATION OF ATHLETES

Attendance	No.	Number Reporting	Health Exam. of Athletes		Performed by		
			Yes	No	M.D.	Coach	R.N.
50– 99	4	4	2	2	1	1	..
100–299	20	19	17	2	9	8	..
300–499	6	6	6	..	5	1	..
500 and over	8	8	8	..	5	2	1
Attendance not given	2	2	1	1	..	1	..
Total	40	39	34	5	20	13	1

ing the first year. Incidentally, Cheyney has less than 300 students, while the other two have more than 700 students each.

As to the health examinations of athletes, which is a definite responsibility of every college, it is seen in Table X that 34 of 39 schools answered this query in the affirmative. However, it is noticed that of these, 13 gave the responsibility to the coach rather than to a physician. Thus, it may be said that only about 50 per cent of the schools actually offer this service.

DISPENSARY SERVICE

The dispensary service plays a very important part in the prevention of disease in the college, since a centrally located and well organized dispensary beckons to the student when he first feels the symptoms of disease. Through friendly, sympathetic and scientific advice, diseases in the early stages are aborted, protracted treatments are avoided, and much loss of time from school and waste of money are prevented. Dispensary service is not found in all Negro colleges—33 per cent stated that they did not offer this service. This varied from 40 per cent in the group with an attendance of 100 to 299 students, to 17 per cent in the 300 or more group as shown in Table XI. Of the 27 schools which had dispensary service, 12, or a little less than half, were in charge of physicians; 10 in charge of nurses, and 4 were administered by matrons or deans.

The value of the dispensary is partly gauged by the number of calls made to it. In Table XII an attempt is made to analyze the problem in 10 colleges

TABLE XI

DISPENSARY ADMINISTRATION

Attendance	No.	Dispensary		Charge of Administration			
		Yes	No	M.D.	R.N.	Dean or Matron	No Report
50– 99	4	1	3	..	..	1	..
100–299	20	12	8	5	4	2	1
300–499	6	5	1	3	2	..	..
500 and over	8	7	1	4	3	..	..
Attendance not given	2	2	..	..	1	1	..
Total	40	27	13	12	10	4	1

TABLE XII

NUMBER OF CALLS TO DISPENSARY

School	Attendance	Separate Dept. of H. E.	P. E. Required at Entrance	Administrator of Dispensary	Equipment	Calls per Day per 1,000 Students
Bishop	574	No	No	R.N.	First Aid	8.7
Wilberforce	689	Yes	Yes	M.D.	Fully Equip.	10.2
Fisk	389	Yes	Yes	M.D.	Fully Equip.	12.9
West Virginia	486	Yes	No	M.D.	Fully Equip.	14.4
Tuskegee	729	Yes	Yes	Health Div.	Fully Equip.	34.3
Prairie View	583	No	Yes	R.N.	Fully Equip.	34.3
A. M. Florida	469	Yes	Yes	Hosp. Med. Direct.	Fully Equip.	42.6
Langston Oklahoma	571	No	Yes	M.D.	Not Given	43.8
State A. M. College	325	No	Yes	R.N.	First Aid	46.2
Virginia State	639	No	No	R.N.	Fully Equip.	54.8

with an attendance of more than 300. It has been shown that the number of calls to college dispensaries varies with such factors as equipment, the requirement of a physical examination at entrance, the type of persons in charge, etc. This unfortunately cannot be shown in this table. It is noted, however, that the number of calls per 1,000 students per day, varies from 8.7 to 54.8, and that close to 40 per cent of the dispensaries fall below the standard of 30 calls.

The most common diseases treated in these dispensaries were reported by 18 of the 27 schools. Table XIII gives the diseases and the number of schools reporting them. The results are in agreement with more extensive morbidity studies in schools and in the general population carried out by the U. S. Public Health Service.[1, 2]

TABLE XIII

Diseases Reported	No. of Schools Reporting
Coryza	17
Dysmenorrhea	11
Tonsillitis	10
Constipation	10
Minor Injuries	10
Indigestion	7
Headache	4
Eye Disease	4
Influenza	4

INFIRMARY AND HOSPITAL SERVICE

The provision of bed care is a unit in the complete health service program which should be found in every college

TABLE XIV

INFIRMARY SERVICE

Attendance	No.	Schools Reporting	Infirmary		Administrator		
			Yes	No	M.D.	R.N.	Dean or Matron
50- 99	4	3	..	3	..	..	..
100-299	20	18	9	9	3	5	1
300-499	6	6	4	2	2	2	..
500 and over	8	8	6	2	3	3	..
Attendance not given	2	2	2	..	..	1	1
Total	40	37	21	16	8	11	2

either through the hospital or the infirmary, or both, but is sadly lacking in Negro colleges. In Table XIV it is seen that only 21, or 57 per cent, of the schools provide this service. No school in the attendance group of less than 100 students had infirmary service, while in the group of 300 to 500 and over the percentage rose to 71. Even in the larger schools approximately 30 per cent have no bed care. As in the case of the dispensaries, the infirmaries are in charge of either a physician, nurse, or matron. As far as hospital care is concerned, only a small number have official hospital connection. Of the 40 schools, only 9 offered these services.

RECORDS AND FEES

Since the college student spends from 2 to 4 years in college, it is the responsibility of the college to keep a complete health record of every individual, so that each illness may be understood in the light of previous ailments, and every bit of advice, corrections, etc., may be recorded. In Table XV it is noted that only 21 of the 36 schools keep health records. Even in the 14 institutions with 300 or more students, only 10 keep such records, and they are kept in a variety of places—7 in a hospital or infirmary, 5 in the superintendent's or dean's office, 3 in the office of the school physician, 3 in the department of physical education, 2 in the office of a nurse, and 1 in the division of hygiene.

TABLE XV

	Health Records		Complete H. R. Kept	
Attendance	No.	Schools Reporting	Yes	No
50– 99	4	4	1	3
100–299	20	17	10	7
300–499	6	6	4	2
500 and over	8	8	6	2
Attendance not given	2	1	..	1
Total	40	36	21	15

Although the college is responsible for the health of the student, the latter should contribute financially to the upkeep of this service. In Table XVI it is noted that of 37 schools, only 24 required a health fee. Thus, approximately one-third of the schools make no charges. However, even in the schools which make this requirement, the amount collected is very small. Half of the schools have a fee of less than $4. Both of these factors may in a measure account for the paucity of health activities in this group of 40 schools.

SUMMARY AND CONCLUSIONS

The foregoing data reveal that in the 40 schools with half the total attendance found in all Negro colleges, the

TABLE XVI

HEALTH FEE

			Health Fee Required		Amount Collected			
Attendance	No.	School Reporting	Yes	No	$.50–1.99	$2.00–2.99	$3.00–3.99	$400 and Over
50– 99	4	4	2	2	..	..	1	1
100–299	20	19	11	8	2	5	2	..
300–499	6	6	4	2	1	1	1	1
500 and over	8	7	6	1	..	2	4	..
Attendance not given	2	1	1	..	..	1	..	..
Total	40	37	24	13	3	9	8	2

health programs are very inadequate, and the impression is derived that most of these have been developed in a pell-mell fashion with no thought of coördination or completeness. Confusion in the administration and inadequacy of personnel, equipment and procedures are noticed in the hygiene teaching, sanitary supervision and health service. On the basis of this survey, these deficiencies would seem to be due to one or all of the following factors:

1. Very inadequate health fee
2. Lack of coördination of the reported practices and procedures
3. Lack of adequately trained personnel

Each of these factors can and should be ameliorated so that the bulk of Negro college students will receive a thorough training in the principles and practices of hygiene.

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What Is the Air Hygiene Foundation?

THE Air Hygiene Foundation of America is an alliance of industry and science which seeks to eliminate or control industrial diseases caused by air pollution. Of special interest is silicosis, which endangers the health of workmen and investments of industry.

Leaders in steel, mining, glass, foundry, refractories, ceramics, the quarry, and kindred industries, realizing the need for coöperative action in facing the industrial dust problem, organized the Air Hygiene Foundation of America in 1935.

The Foundation is now engaged in a far-reaching undertaking, gathering together all pertinent facts relating to pneumoconiosis in the fields of medicine, engineering, and law.

This work is under the supervision of Managing Director H. B. Meller, and three major committees, the medical, engineering, and legal.

The Foundation is coöperating with the U. S. Department of Labor in its National Silicosis Conferences. The department in turn has promised cooperation to the Foundation in its activities. Coöperation has also been pledged by the U. S. Bureau of Mines, the U. S. Public Health Service, the American Standards Association, state medical societies, companies, corporations, and trade associations.

Effectiveness of the Methods of Dish and Utensil Washing in Public Eating and Drinking Establishments

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AWARE of the fact that many communicable infections are contracted orally and that public eating and drinking establishments are gaining in popularity, we decided to determine if utensils in these establishments might possibly be considered as vectors in the dissemination of infections which are spread from mouth to mouth. It seemed reasonable to believe that, if upon examination many organisms were found, the dishwashing process was unsatisfactory from a bactericidal standpoint because pathogenic as well as non-pathogenic bacteria would survive.

With this thought in mind we have endeavored to ascertain the bactericidal value of the methods of washing dishes, glasses, silverware, and other utensils in various public eating and drinking establishments. The survey as carried out by this department included restaurants, soda fountains, luncheonettes, and beer and liquor dispensing establishments. In the greater majority of these places, with the exception of those that dispense beer and liquors, the dishes and utensils are washed after each use in soapy water, the temperature of which is in most instances luke warm, followed by a hot or cold water rinse. Glasses used for dispensing beer and other alcoholic beverages are, in a few instances, washed in hot soapy water once daily and rinsed in cold water after each individual use. In the majority of alcoholic beverage dispensing shops, information was obtained which tends to show that the glasses are washed with soap and hot water at intervals varying from two to three times weekly. After each individual use they are rinsed only with cold water followed by polishing with a presumably clean towel.

SAMPLE COLLECTION KIT

The field equipment developed by this department to obtain bacteria counts from spoons, forks, tumblers, and dishes is as follows: Absorbent cotton swabs about ¾″ x ¼″ were made with 6″ applicator sticks, and the upper end forced through a cork large enough barely to fit test tubes ⅞″ in diameter by 5″ in length. The stopper containing the swab was then placed lightly in the test tube and sterilized by autoclave, 15 lb. for 20 minutes. After sterilization the tubes are removed from the autoclave, and the stoppers are seated. These swab sets, several sterile 20 c.c. screw-cap vials, 10 c.c. sterile pipettes, a 212° F. thermometer, and several small bottles of sterile water constitute the kit used by the inspectors for obtaining the various samples for bacteriological examination.

SAMPLE COLLECTION TECHNIC

Samples were obtained by the following technic: During or just after the noon hour rush, from utensils which were washed and ready for the customers' use, a fork and a spoon were selected from the racks or drawers in which they were contained, and the entire area that comes in contact with the user's mouth was rubbed over at least three times with the sterile swab which had been just previously dampened in sterile distilled water. (It was found that if the swab was highly saturated with water, as it was passed over the surface of the utensil it would leave a film which might have a tendency to withdraw some of the organisms from the swab.) The swab was then immediately placed in the test tube. In the case of tumblers, two were selected and the same procedure was followed, but specimens were taken only from the area which ordinarily comes in contact with the lips, that is, approximately ½" down from the upper edge, and completely encircling the inner and outer surfaces. Samples (10 c.c.) of the wash and rinse waters were also taken by sterile pipette and placed in sterile screw-capped vials.

LABORATORY TECHNIC

The time lapse between the collection of the samples and their arrival at the laboratory for plating was from 1 to 3 hours. The procedure used in the laboratory for evaluating the number of bacteria was carried out as follows:

1. 5 c.c. of sterile water were added to each tube.
2. The swab handle was so adjusted in the stopper that the lower half of the swab was submerged.
3. The tube was then shaken violently against the palm of the hand 50 times for the purpose of liberating the bacteria from the swab.
4. Holding the swab handle between the thumb and index finger, the swab was then drawn up from the water and rolled against

TABLE I

SUMMARY OF BACTERIOLOGICAL EXAMINATIONS OF SPECIMENS COLLECTED FROM BEER GLASSES AND RINSE WATERS IN PUBLIC BARS AND TAVERNS

Establishment No.	*Bacteria per Utensil*		*Bacteria per c.c. Rinse Water*	
	Tumbler	*Tumbler*	*Total Count*	*Colon Group*
51	20,000	Accidentally Contaminated	8,000	384
52	49,000	46,000	640,000	19,000
53	3,830	12,000	4,000	1,042
54	2,260	14,000	87,000	576
55	49,000	61,000	134,000	3,456
56	31,000	80,000	650,000	12,000
57	85,000	46,000	770,000	2,300
58	42,000	86,000	384,000	15,000
59	49,000	95,000	6,500,000	14,000
60	52,000	49,000	390,000	2,600
61	67,000	84,000	4,400,000	166,000
62	31,000	13,000	5,000,000	1,700,000
63	26,000	98,000	2,000,000	51,000
64	95,000	115,000	11,000,000	56,000
65	78,000	46,000	3,500,000	3,200
66	61,000	15,000	43,000	1,100
67	104,000	46,000	400,000	83,000
68	78,000	104,000	450,000	200
69	61,000	52,000	120,000	900

TABLE II

SUMMARY OF BACTERIOLOGICAL EXAMINATIONS OF SPECIMENS COLLECTED FROM UTENSILS AND WASH WATERS IN PUBLIC EATING AND DRINKING PLACES

Establishment No.	Type of Place	Bacteria per Utensil			Bacteria per c.c.		
		Fork	Spoon	Tumbler	Tumbler	Wash Water	Rinse Water
1	Drug, Soda, Lunch	445	35	1,920	2,240	....	97,000
2	Soda, Lunch	1,090	640	2,880	3,420	....	14,000
3	Drug, Soda, Lunch	615	170	65,000	69,000	2,300	....
4	Restaurant	1,125	43,000	1,845	55	250,000	....
5	Tea Room	920	960	605	1,280	26,000	....
6	Cafeteria	320	230	1,050	....	44,000	....
7	Lunch	20	60	71,000	34,000	20,000	....
8	Diner	45	2,400	57,000	65,000	928,000	....
9	Lunch	55	65	12,000	45,000	430,000	....
14	Lunch	45	25	27,000	16,000	....	....
15	Dairy Lunch, Soda	100	1,600	115,000	150,000	....	38,000
16	5 and 10 Soda, Lunch	24,000	26,000	10,000	23,000	384,000	....
17	5 and 10 Soda, Lunch	1,920	2,880	40	45	6,000	....
18	Restaurant	40	10	15	60	2,800	....
19	Drug, Soda, Lunch	45	135	55,000	26,000	1,650	....
20	Hotel	35	200	690	70	6,000	....

NOTE: Where no count appears samples were not obtainable.

the upper portion of the tube in order to expel therefrom as much of the remaining water as possible.

5. The swab was then removed and 1 c.c. of the water in the tube plated undiluted, and when desirable 1 c.c. of a 1 to 10 dilution was also planted.

The media used was Difco Nutrient Agar. Dilutions of 1 to 100 and 1 to 1,000 or higher when desirable, of rinse and wash water samples were also plated on similar media. In order to attempt to ascertain whether or not organisms of the coli-aerogenes group were present in a few instances, pour plates were made on Endo's media from a 1 to 100 dilution of the rinse and wash waters. An index of the laboratory results will be found in Tables I and II.

At the time of taking samples the inspectors recorded on previously prepared forms the general sanitary condition of the establishment, the method of washing and sterilizing the utensils, the physical appearance and temperatures of the wash and rinse water, the amount of visible debris on the utensils, the kind of soap, detergent, or sterilizing agent used, the method of drying, and whether or not automatic

TABLE III

TEMPERATURES OF WASH AND RINSE WATERS IN PUBLIC EATING AND DRINKING PLACES

Establishment No.	Temperature of Wash Water	Temperature of Rinse Water
1	98° F.	90° F.
2	103°	Tap— 60°
3	90°	" — 60°
4	105°	105°
5	100°	140°
6	120°	Dishes not rinsed
7	120°	"
8	120°	"
9	100°	Scalds
10	100°	Dishes not rinsed
11	95°	"
12	90°	"
13	84°	"
15	116°	118°
16	94°	108°
17	100°	104°
18	164°	130°
19	110°	124°
20	100°	166°

TABLE IV

TEMPERATURES OF RINSE WATERS IN ALCOHOLIC BEVERAGE DISPENSING ESTABLISHMENTS

Establishment No.	*Temperature of Rinse Water*
51	70° F.
52	80°
53	77°
54	70°
55	74°
56	70°
57	70°
58	70°
59	72°
60	70°
61	70°
62	72°
63	70°
64	74°
65	72°
66	70°
67	76°
68	70°
69	76°

washing machines were used. Temperatures of some of the wash and rinse waters will be found in Tables III and IV.

In none of the bars were glasses or mugs washed in either hot or cold soapy water after each use.

In view of the fact that the bacterial count was excessive in all wash and rinse waters and of many utensils, it seems conclusive that the methods used act only as a detergent by the partial removal of food particles from the various utensils, but do not have any appreciable bactericidal value. It seems only logical to conclude that the washing of silverware, glasses and dishes in water of a high bacteria content would cause their gross contamination which might possibly lead to the infection of many individuals when these waters are contaminated by utensils used by a person harboring disease producing organisms.

The proprietors of several restaurants and taverns have agreed to coöperate with this department in order that we may carry out control studies relative to various methods of chemical sterilization or disinfection of eating utensils. This work is now being carried out, and a report will be submitted at a later date.

National Medical Council on Birth Control

THE National Medical Council on Birth Control has recently been formed to control and supervise medical policies of the American Birth Control League and to initiate, encourage, and execute appropriate scientific research in the medical aspects of birth control.

Frederick C. Holden, M.D., of New York, is Chairman, and Eric M. Matsner, M.D., member A.P.H.A., of New York, is Executive Secretary of the Executive Committee.

Lead Content of Chewing Tobaccos and Snuffs

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IN 1921 Cadenhead and Jacques,[1] impressed by the fact that lead may find its way into smoking tobacco from the foil in which it may be wrapped, performed an experiment to show that, at least when lead was added to the tobacco to the extent of 17 per cent, small quantities might be volatilized during smoking and thus pass into the smoker's system. In 1929 Reitzel[2] summarized the work that had been done on poisoning resulting from lead in snuff. One other publication[3] on this subject has since appeared. No references to the occurrence of lead in chewing tobacco have been found.

In all the publications mentioned the presence of the lead was attributed to the use of lead chromate to improve the color of snuff, or to contamination from the lead containing foils in which the products were wrapped. The lead content is stated to have been over 3 per cent in one case.

It is probable that cases of such gross contamination are rare today, but since lead arsenate is used in protecting growing tobacco from damage by insects, it is evident that many manufactured tobacco products will contain at least traces of lead.* Reitzel[2] refers to this possible source of contamination. The literature appears to contain no recent references to any extended analyses for lead of various brands of tobacco products, probably for the reason suggested by Reitzel, namely, that the Food and Drugs Act does not include tobacco products within its scope. The suspected snuffs in the cases reported by Bauer and Ropes[4] contained about 0.2 grain of lead per pound (30 p.p.m.), which may have been due to spray residue.

Because of the chance of direct entry of lead into the system from the use of chewing tobacco and snuff, an investigation of its occurrence in these two products was undertaken. Seven samples of snuff and 9 of chewing tobacco, representing in each group the products of 6 manufacturers, were obtained from stores in Washington, D. C. The samples of chewing tobacco were first dried so that they could be ground in a mortar. Both the weights as received and the dry weights were recorded so that the results could be calculated back to the original basis. After pulverization and thorough mixing, duplicate samples were taken for analysis.

The snuffs were all in such a form that no grinding was necessary. Two or more boxes of snuff were well mixed together before samples were taken.

Chewing tobacco No. 5 was taken from a package having an outside wrapping of metallic foil that was found to contain a large percentage of lead.

* The present policy of the Department of Agriculture is to discourage the use of lead arsenate for the control of leaf-feeding tobacco pests in cases where large deposits of the material will be left on the crop at harvest time.

There was, however, a sheet of waxed paper next to the tobacco, and it is unlikely that the metal wrapper contributed much to the lead content. The metallic labels on some of the plug tobaccos were found to be free of lead.

Considerable difficulty was encountered in developing a method for the determination of lead. Of several tried, the electrolytic " mush " method as used for the determination of lead in sprayed apples [5] appeared most promising, but the results obtained at first were not consistent because of the formation of a precipitate when the solution containing the lead was made alkaline preparatory to the extraction of the lead with a chloroform solution of diphenylthiocarbazone. It is believed that this precipitate, probably consisting largely of the phosphates of the calcium and iron groups, occludes some of the lead. It was discovered, however, that sodium hexametaphosphate * will prevent the formation of this precipitate, or at least retard it sufficiently to permit the extraction to be made. Even so, 10 grams of tobacco was the most that could be handled, and this forced the adoption of the small anode and the very dilute thiosulphate solution used in the later stages of the procedure. The method as finally adopted is described in some detail here, because careful observance of these details is necessary if satisfactory results are to be obtained.

ANALYTICAL PROCEDURE FOR LEAD

Place 10 gm. of tobacco (dry weight) in a 400 c.c. beaker, moisten with water (to prevent combustion when heated with nitric acid), and add 50 c.c. of concentrated nitric acid. Allow the contents to stand, with a watch glass over the beaker, until the initial action has subsided. Place the beaker over a flame and boil for about ½ hour or until the material is well mushed. Dilute the mushed solution when cool, transfer to a 300 c.c. volumetric flask, make to the mark, allow to stand for 15 minutes (shaking at short intervals), filter, and take a suitable aliquot (200 c.c.) for the analysis. Add to the aliquot in a 500 c.c. separatory funnel, 20 c.c. of citric acid (20 per cent w/v) and 8 gm. of sodium hexametaphosphate, make this solution just alkaline with ammonium hydroxide, and add 10 c.c. of potassium cyanide solution (10 per cent w/v). Extract with small portions of dithizone (diphenylthiocarbazone) solution in chloroform (0.05 per cent w/v) until the color of one portion remains unchanged. Drain the successive chloroform extracts into a smaller separatory funnel containing 20 c.c. of ammonium hydroxide (1 + 99), and shake as a means of washing the chloroform. When the extraction is complete, drain the combined portions of dithizone-chloroform solution (containing the lead) into a 150 c.c. beaker and evaporate to dryness over a steam bath. After the chloroform has been completely evaporated, add 2 c.c. of concentrated nitric acid, place a watch glass over the beaker, and boil until the gases evolved are colorless. Dilute to about 100 c.c., heat to 75° to 85° C., add 2 c.c. of a saturated solution of potassium dichromate, and electrolyze (maintaining the stated temperature) with 80—90 milliamperes for 20 minutes, using a small 1" by 5/16" rotating cylindrical platinum-gauze electrode. Dissolve the lead peroxide in a mixture of 2 c.c. of potassium iodide (2 per cent w/v) and 4 c.c. of acid sodium acetate solution (20 c.c. of saturated solution sodium acetate, 10 c.c. of glacial acetic acid, and 70 c.c. of water). Titrate with approximately

* This compound is available commercially as a detergent, manufactured by Calgon, Inc., Pittsburgh, Pa.

0.001 N sodium thiosulphate* that has previously been standardized against a known amount of lead.

Since no considerable quantity of tobacco that was known to be free from lead arsenate spray residue could be obtained, it was necessary to judge the results from this method by the difference between two otherwise identical samples, to one of which a known amount of lead had been added. Recoveries of only 90 per cent were obtained, and repeated efforts to improve this recovery failed. In an attempt to trace the source of loss of the 10 per cent of lead in the samples, the lead was added after filtration, when all the silica had been filtered off, instead of before mushing. When the lead was added at this stage, the analyses showed a 99 per cent recovery. This places the cause of the loss on some of the insoluble material, which contains for the most part silica and organic matter. Silica has given trouble in other methods that have been tried and is thought to be responsible here. As the time that could be devoted to the study was limited, the results are offered subject to this limitation. Although arsenic was not of primary interest here, it was determined in all samples to confirm the belief that the lead originated in the insecticidal lead arsenate used on the tobacco. The method used was that developed by C. R. Gross.[6] The results for both lead and arsenic are given in Table I.

TABLE I

LEAD AND ARSENIC IN CHEWING TOBACCO AND SNUFF

Sample	*Pb** Gr./lb.	*As_2O_3** Gr./lb.	*Ratio Pb/As_2O_3*
	Chewing Tobaccos		
1	0.058	0.074	0.8:1
4	0.181	0.093	1.9:1
5	0.129	0.216	0.6:1
6	0.610	0.261	2.3:1
7	0.025	0.029	0.9:1
8	0.065	0.036	1.8:1
9	0.125	0.126	1.0:1
10	0.060	0.148	0.4:1
11	0.045	0.113	0.4:1
	Snuffs		
12	0.088	0.035	2.5:1
13	0.388	0.189	2.0:1
14	0.935	0.364	2.6:1
15	0.500	0.224	2.2:1
16	0.194	0.116	1.7:1
17	0.711	0.303	2.3:1
18	0.853	0.315	2.7:1

* Calculated on basis of samples as received

If lead arsenate were the only source of contamination, the ratio Pb/As_2O_3 should be 2.1: 1. Many of the observed ratios approximate this value, and those that are lower might be due to the use of other arsenical insecticides in addition to lead arsenate.

The maximum figures for lead in chewing tobacco and snuff are equivalent to 85 and 131 p.p.m., respectively, both in excess of the 30 p.p.m. found by Bauer and Ropes in samples of snuff suspected by them of causing lead poisoning.

SUMMARY

A method for the determination of lead in tobacco has been worked out which yields a recovery of about 90 per cent. This procedure has been applied to 7 samples of snuff and 9 of chewing tobaccos. The amount of lead present ranged from 0.025 to 0.610 gr. per lb. (3.5 to 85 p.p.m.) in the chewing tobaccos and from 0.088 to 0.935 gr. per lb. (12 to 131 p.p.m.) in the snuffs. The arsenic trioxide content of the chewing tobaccos ranged from 0.029 to 0.261 gr. per lb. (4.1 to 36 p.p.m.) and of the snuffs from 0.035 to 0.364 gr. per lb. (4.9 to 51 p.p.m.).

* This very dilute thio may be protected from decomposition for several weeks by adding 1 per cent of amyl alcohol to the boiled water with which it is prepared.

From the Pb/As_2O_3 ratios found, it is probable that the presence of lead is due to dusting of the tobacco in the field with lead arsenate.

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Resolution Adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, June, 1936

WHEREAS, at the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association held at St. Louis, Mo., February 25, 1936, a presentation was made by Joel I. Connolly, of the Chicago Board of Health, relating to possible health hazards in apparently modern plumbing installations in public buildings, and

WHEREAS, it was manifest in the said presentation that plumbing fixtures which have been generally regarded as safe and sanitary in design may in fact constitute a real and serious health hazard by reason of the danger of back siphonage and contamination of water supply mains, and

WHEREAS, the probability exists that such apparently modern, safe, and sanitary plumbing installations may exist in numerous school building in the United States, and

WHEREAS, the existence of such apparently safe, modern and sanitary plumbing installations and reliance upon them brings about a sense of false security, therefore, be it

RESOLVED, by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association that this Committee apprehends the possibility of danger to the health of school children from apparently safe, modern, and sanitary plumbing installations in school buildings, and be it further

RESOLVED, that the said Joint Committee earnestly recommends to all school boards and school executives that surveys be instituted by competent engineers to ascertain whether or not the danger of back siphonage and consequent pollution of water supply mains exist in plumbing installations within their jurisdictions, and that such surveys be followed by prompt corrective measures, and be it further

RESOLVED, that these resolutions be offered for publication to all journals dealing with public health, health education and general education.

Factors Influencing the Vitamin C Content of Vegetables*†

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FRESH raw vegetables have long been known to possess antiscorbutic properties. In 1747 James Lind, a surgeon of the British Navy, indicated that scurvy could be cured by the eating of green vegetables. In 1912 Holst and Frölich demonstrated that experimental scurvy in guinea pigs could be cured by the addition of small amounts of cabbage, turnips, or dandelion to the vitamin C deficient diet. There is little agreement, however, concerning the amount of vitamin C contained in a given vegetable. In a recent survey of the literature relating to the vitamin C content of spinach,[1] we have found that the amount of ascorbic acid reported by various workers ranged from 0.07 to 0.62 mg. per gm. of spinach. These calculations are based upon the assumption that 0.5 mg. of ascorbic acid per day is required for protection of a guinea pig from scurvy (Bessey and King[2]). Similar variations in the reported ascorbic acid content of most other vegetables may be noted.

While variations in technic employed in making the vitamin C estimations may account for some of the differences in the results obtained, it is probable that each of the common vegetables does vary widely in ascorbic acid content.

Variety,[1, 2, 3] freshness,[1, 2, 4, 5] and maturity[1, 2, 4] have already been indicated as factors affecting the vitamin C content of vegetables. However, no one has carried out sufficiently detailed studies of the ascorbic acid content of the different vegetables to show the relative influence of these and other factors.

Von Hahn and Görbing[6] and others have suggested that the nature of the fertilizer has an influence on the ascorbic acid content of the vegetable produced.

There is little agreement among workers as to the effect of open kettle cooking on the vitamin C potency of vegetables. Similarly, the extent of loss of this vitamin during preparation for freezing has not been definitely defined, although Fellers[7] has conducted preliminary experiments along this line.

Because of the lack of exact knowledge on the points mentioned above, a detailed study of these and other factors affecting the ascorbic acid content of vegetables has been begun in our laboratories. Thus far, the vitamin

* Approved by the Director of the New York State Agricultural Experiment Station for publication as Journal Paper No. 131. March 18, 1936.
† Presented before the Third Annual Meeting of the American Institute of Nutrition at Washington, D. C., March 25, 1936.

TABLE I

ASCORBIC ACID CONTENT OF DIFFERENT VARIETIES OF VEGETABLES HARVESTED AT THE SAME STAGE OF MATURITY

		Ascorbic Acid in Mg. per Gm. of Vegetable		
	No. of Varieties	*Maximum*	*Minimum*	*Average*
Rhubarb	2	0.16	0.13	0.15
Peas	18	0.40	0.18	0.27
String Beans	10	0.24	0.09	0.18
Tomatoes	8	0.31	0.16	0.22
Cabbage	4	0.38	0.22	0.31
Spring Spinach (on muck soil)	12	0.62	0.38	0.49
(on upland soil)	12	0.89	0.53	0.73
Fall Spinach (on muck soil)	12	0.67	0.48	0.60
(on upland soil)	11	1.13	0.72	0.99

C content of spinach, rhubarb, peas, snap beans, cabbage, and tomatoes has been considered.

METHODS USED

The method of determining ascorbic acid described by Bessey and King[2] was employed in the examination of spinach, rhubarb, and peas. In determining the ascorbic acid content of snap beans and cabbage, the acetic acid solution used for extraction according to the above procedure was replaced by a mixture of acids, 1 N with respect to sulphuric and N/4 with respect to metaphosphoric. This solution has been found to give a more complete extraction of the ascorbic acid, and, moreover, the metaphosphoric acid prevents loss by catalytic oxidation. The details of the procedure employed are being published in another paper.

Representative samples of spinach, peas, snap beans, and cabbage, analyzed by the indophenol titration method have been checked by bioassays according to the procedure described by Tressler, Mack, and King.[1] In general, the results obtained by the two methods agree closely.

VARIETY STUDIES

A general resumé of our variety studies is presented in Table I. From these data it is seen that variety is a factor of considerable importance in the case of peas, snap beans, tomatoes, cabbage, and spinach. However, there was little difference in the ascorbic acid content of the two varieties of rhubarb examined.

In general, small-seeded peas, such as the Alaska variety, were found to have approximately one-half more ascorbic acid than the large seeded varieties.

The Georgian and Blue Lake varieties of snap beans contain only approximately one-half the amount of vitamin C found in the Tendergreen, Kidney Wax, Ideal Market, and Kentucky Wonder varieties.

The Golden Queen and Early Detroit tomatoes had a much higher ascorbic acid content than the other varieties examined.

The Princess Juliana and King of Denmark varieties of spinach were found to be lower in ascorbic acid than the other ten varieties grown in the spring, containing only about three-fourths as much as the Eskimo, Old Dominion, and Nobel varieties. This same relation did not hold in the case of the autumn spinach grown on muck soil.

TABLE II

ASCORBIC ACID CONTENT OF THE LEAVES OF SEVERAL VARIETIES OF SPINACH GROWN IN SPRING AND AUTUMN ON DIFFERENT SOIL TYPES

	Ascorbic Acid in Mg. per Gm. of Spinach Grown in			
	Spring		*Autumn*	
Variety	*On Muck Soil*	*On Upland Soil*	*On Muck Soil*	*On Upland Soil*
Eskimo	0.62	0.77	....	....
Viking	....	....	0.61	1.13
Virginia Savoy	0.48	0.80	0.67	1.05
Broad Flanders	0.49	0.89	0.56	1.13
Old Dominion	0.56	0.70	0.65	1.02
Nobel	0.55	0.79	0.53	1.07
Victoria	0.55	0.66	0.59	....
Viroflay	0.53	0.78	0.54	0.88
Hollandia	0.42	0.75	0.63	0.99
Long Standing Bloomsdale	0.49	0.74	0.55	0.80
Prickly Winter	0.46	0.75	0.48	0.95
King of Denmark	0.40	0.64	0.65	0.80
Princess Juliana	0.38	0.53	0.65	0.72
Mean	0.49	0.75	0.60	0.99

INFLUENCE OF GROWING CONDITIONS

This preliminary study of the vitamin C content of spring and autumn spinach grown on upland and muck soils has convinced us that, at least in the case of leafy vegetables, the soil on which they are grown, and growing conditions have a decided influence on the ascorbic acid content. The average amount of ascorbic acid in spinach leaves grown in the spring on upland soil was 50 per cent higher than that of the spinach from muck soil (Table II). The same statement is true for autumn spinach, but while the spring upland spinach averaged only about 0.73 mg. ascorbic acid per gm., the autumn upland spinach averaged 0.96 mg. per gm. Similarly, the spring muck spinach averaged 0.49 mg. ascorbic acid per gm. and the autumn muck spinach 0.60 mg. per gm. In other words, it appears that autumn spinach contains nearly a third more vitamin C than spring spinach. These conclusions are based upon the results of a single season's work. They will have to be verified in other years in order to be more certain of the validity of these findings.

MATURITY AS A FACTOR

Fully ripe tomatoes were found to be nearly twice as high in ascorbic acid as green tomatoes.

As green peas mature, the percen-

TABLE III

LOSS OF ASCORBIC ACID FROM SPINACH DURING STORAGE

		Number of Days' Storage			
Variety of Spinach	*Storage Temperature in Degrees C.*	*0 Mg. per Gm.*	*3 Mg. per Gm.*	*7 Mg. per Gm.*	*17 Mg. per Gm.*
Prickly Winter	1 to 3	0.78	0.76	0.72	0.39
" "	23 to 26	0.78	0.44	0.05	Spoiled
Hollandia	1 to 3	0.79	0.76	0.64	0.49
"	23 to 26	0.79	0.39	0.03	Spoiled

tage of ascorbic acid decreases, probably because of the rapidly increasing dry matter content and lowered respiration.

In the case of spinach, snap beans, and rhubarb, the percentage of ascorbic acid was approximately the same at all of the stages of maturity at which these vegetables were examined.

LOSS OF VITAMIN C DURING STORAGE

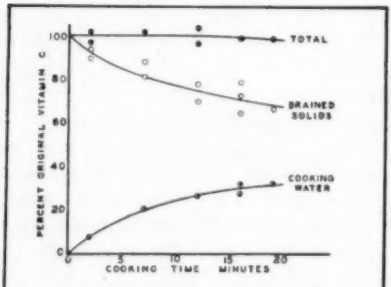
Freshly harvested spinach on standing for 3 days at room temperature lost approximately one-half of its ascorbic acid (Table III). But after 3 days' storage at 1 to 3° C., the spinach was found to retain practically all of its vitamin C. A similar result was obtained with snap beans and green peas.

On the other hand, the more acidic vegetables, rhubarb and tomatoes, lost very little ascorbic acid even when held at room temperature for a week.

EFFECT OF COOKING

Preliminary cooking studies conducted on peas, snap beans, and cabbage indicate that a considerable proportion of the ascorbic acid passes into the water during the boiling of vegetables, but the total amount of ascorbic acid decreases but little. In the case of boiling of snap beans (Figure I), approximately one-third of the vitamin C dissolved in the cooking water in 20 minutes' time, but the actual destruction of this vitamin was on the average less than 10 per cent of the total present.

FIGURE I



THE EFFECT OF COOKING ON THE VITAMIN C CONTENT OF STRING BEANS

PREPARATION OF VEGETABLES FOR FREEZING

Preliminary studies on the losses of vitamin C during preparation for freezing, freezing, cold storage, and thawing of peas have shown that blanching, sufficient to inactivate catalase, is necessary in preparing vegetables for freezing in order to eliminate loss of ascorbic acid during storage of the frozen vegetables at the temperatures commonly employed commercially (—18 to —9° C.).

During blanching of peas there is some loss of ascorbic acid. This varies from 10 to 30 per cent depending upon the type and severity of the blanching treatment. Water blanching causes a slightly greater loss of ascorbic acid than steam blanching, probably because some of it is dissolved by the blanching water.

Thawed vegetables gradually lose their vitamin C. This indicates the value of cooking without preliminary defrosting.

PUBLIC HEALTH SIGNIFICANCE OF THESE FINDINGS

The fact that certain varieties of tomatoes contain 50 per cent more vitamin C than others indicates clearly that packers of this juice should give more attention to the varieties grown. Canners of spinach attempting to obtain a canned product of high vitamin C potency should consider not only the variety, but also the season, and the soil on which their raw material is grown.

Since certain vegetables lose half their vitamin C content when held at room temperatures for 3 days, and since the rate of loss is much lower when

they are refrigerated, the necessity of prompt cooling of all except the more acidic vegetables, such as tomatoes and rhubarb, is obvious if their full nutritive values are to be retained. These studies should be continued in order to determine the optimum conditions of storage of all vegetables necessary to obtain the maximum retention of nutrients.

Of still greater significance, from the standpoint of public health, are the observations that, contrary to the general belief, but little vitamin C is destroyed during cooking. It is probable that this idea became prevalent because but few nutritional investigators took into consideration the amount of this vitamin which dissolved in the cooking water. The fact that the water in which vegetables, rich in vitamin C, have been cooked may be as rich in this vitamin as tomato juice is of great importance. It is evident that methods of cookery should be adopted which will make use of this nutritionally valuable substance which is too often discarded.

SUMMARY AND CONCLUSIONS

Variety is a factor of considerable importance in determining the ascorbic acid content of peas, snap beans, tomatoes, cabbage, and spinach.

Soil and growing conditions affect the vitamin C content of spinach.

The ascorbic acid content of tomatoes increases as they ripen. On the other hand, the percentage of vitamin C in peas decreases as they mature.

Snap beans, peas, and spinach rapidly lose ascorbic acid if held at room temperature. Refrigeration greatly reduces the rate of loss.

Preliminary cooking studies indicate that a considerable proportion of the ascorbic acid passes into the water during cooking by boiling, but the total amount decreases relatively little.

Blanching is necessary in preparing vegetables for freezing, in order to retain the ascorbic acid content of the frozen vegetables at the usual cold storage temperatures. Thawed vegetables slowly lose vitamin C.

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Use of Nigrosine to Demonstrate Treponema Pallidum in Syphilitic Lesions

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AS spirochetes are notoriously difficult to stain, the characteristic morphology of *Treponema pallidum* can best be demonstrated by darkfield illumination or by methods which stain the background, leaving the organisms colorless. Many agents have been used for the purpose of staining the background, such as India ink, collargol and Congo-red. We find that nigrosine * is far superior to any agent used for this particular purpose as it is highly colloidal and when the smear is properly prepared the spirochetes may be easily detected and are characteristically pictured.

The detection of the spirochetes (*T. pallida*) is of diagnostic value in the recognition of doubtful cases of syphilis and is a factor of considerable importance in the relation to early diagnosis. Successful results depend upon the selection of the most suitable material for examination and the most suitable method of collection. We suggest that the primary ulcer and papules be thoroughly cleansed with soap and water and the surface rubbed dry with a sterile pad. The ulcer should then be squeezed so that a clear exudate is extruded from the lower layers of the induration. For the examination of glandular fluid it is advisable to puncture the enlarged gland by means of a sterile syringe and obtain sufficient quantity of tissue fluid from the glands by aspiration, perhaps assisted by light massage. According to the investigations of Hoffman and Lipschutz,[1] the peripheral portions of the glands contain the spirochetes in greater numbers than the central portions.

METHOD FOR STAINING

Wet Preparation—A small loopful of the exudate is placed on a clean slide and to this is added a loopful of a 5 per cent aqueous solution of nigrosine to which ½ per cent formalin has been added as a preservative. The material is thoroughly mixed and spread over the slide until the proper thinness is obtained. In mixing the material one usually gets satisfactory thinness by starting in the center of the drop and by rotary movements gradually increase the size of the smear by spreading out from the center. In this way some portion of the smear will be ideal for

* Nigrosine (synonyms: nigrosin W. Gray R, B, BB. Silver gray. Steel gray. Indulin black) is not a pure dye, but is a mixture, and apparently the composition of different lots may vary. Ordinarily it is a mixture of a blue-black or violet indulin with a yellow dye in such a proportion that the resulting blend appears black. Our dye was obtained from Coleman and Bell.

TABLE I

COMPARATIVE RESULTS

Case No.	Description	Kahn	Wassermann	Darkfield	Nigrosine
1	Primary chancre—male	O	P	P	P
2	Primary chancre—male	O	P	P	P
3	Condyloma—female	O	P	O	P
4	Atypical lesion on penis	N	N	N	N
5	Aspirated bubo—male	O	P	N	P
6	Primary lesion on lip—male	O	O	P	P
7	Healing lesion on penis	O	P	O	P
8	Atypical lesion on penis	N	N	N	N
9	Atlanta—smear 22 days old	O	O	P	P
10	Atlanta—smear 6 days old	O	O	P	P
11	Atlanta—smear 2 days old	O	O	P	P
12	Aspirated bubo—male	O	P	O	P
13	Ulcer from broken down bubo	O	P	O	P
	Ulcer on penis	O	P	O	P
14	Atypical lesion on penis	N	N	N	N
15	Open ulcer on penis	P	P	O	P
16	Condyloma—female	P	P	O	P
17	Lip chancre—female	O	O	P	P
18	Atlanta—smear 3- days old	O	O	P	P
19	Atlanta—smear 26 days old	O	O	P	P
20	Atlanta—smear 20 days old	O	O	P	P
21	St. Louis—smear 45 days old	N	P	P	P
22	St. Louis—smear 45 days old	O	O	P	P
23	St. Louis—smear 35 days old	P	O	P	P
24	St. Louis—smear 20 days old	P	O	P	P
25	St. Louis—smear 18 days old	N	O	P	P
26	St. Louis—smear 18 days old	P	O	N	N
27	St. Louis—smear 17 days old	P	O	P	P
28	St. Louis—smear 11 days old	P	O	P	N*
29	St. Louis—smear 7 days old	P	O	P	P
30	St. Louis—smear 4 days old	P	O	P	P

P—Positive; N—Negative; O—No test made

* In this particular slide spirochetes were seen but their morphology was not typical of *Treponema pallidum*.

examination. When the proper thinness is obtained the slide is passed over the flame to dry the preparation rapidly. A drop of oil is placed directly on the dried smear and examined under the oil immersion objective. A good substage lamp should be used so that the field is properly illuminated. If the slide is to be used for future reference, the oil is best removed by immersing it in a coplin jar of xylol for a few minutes. One should not blot the excess oil because any rubbing will cause scratches on the preparation.*

Dry Smear—A drop of the exudate may be left to air-dry on the slide. At some later date place a small loopful of water on the dried area, allow to remain a few seconds to dissolve the exudate, and then place a loopful of nigrosine, smear, and dry. In this manner we have obtained excellent results from preparations sent to us from different laboratories. In several cases the exudate had been dried on the slide

* We would suggest to anyone using this method of demonstrating the presence of spirochetes to try staining the spirochetes from the mouth so that one may learn the proper thinness of the smear to detect more easily the presence of spirochetes.

45 days before we applied the nigrosine stain. This method of sending dried smears into the laboratory would be much simpler and probably more satisfactory than the present method of rushing a saline exudate in a sealed tube to the laboratory for diagnosis under the darkfield illumination. The sooner, however, the smear is redissolved and stained, the better the *Treponema pallida* stand out against the dark background.

RESULTS

1. This method of demonstrating the presence of *Treponema pallidum* in primary ulcers and papules has been successful in all but 1 case in which either the darkfield examination or the serology was positive for syphilis. In 1 case the nigrosine preparation was positive and the darkfield negative. The serum from this patient later gave a positive Wassermann reaction.

2. This method would simplify the present one used in most state laboratories for the diagnosis of syphilis as the dried exudate could be sent to the laboratory on a slide and a satisfactory diagnosis made from this. In 12 out of 13 smears our findings checked with the darkfield examinations made in other laboratories. Some of these smears were 45 days old before being stained with the nigrosine.

3. This method is much simpler and apparently as accurate as the darkfield examination.

REFERENCE

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NOTE: The authors wish to express their thanks to Dr. J. W. Brittingham, University Hospital, Augusta; to Dr. J. C. Willett, Chief of the City Laboratories, St. Louis; and to Dr. E. J. Sunkes, State Department of Health, Atlanta, for their valuable assistance in this work.

AMERICAN PUBLIC HEALTH ASSOCIATION
SIXTY-FIFTH ANNUAL MEETING

NEW ORLEANS, OCTOBER 20–23, 1936

For Preliminary Program, Railroad Fares, and Hotel Rates, see Supplement in back of Journal

Epidemiological Features of a Typhoid Fever Outbreak in West Philadelphia Following a Supper

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THE great reduction in typhoid fever which has taken place during the past few decades represents an achievement in preventive medicine of which sanitarians and health officials alike are proud. Philadelphia has been congratulating herself upon the steadily declining case and death rates of this disease, which in 1933 reached a minimum of 105 cases, and a death rate of 0.6 per 100,000, thereby winning second honor among the metropolitan cities of the country. Contrast these figures with those for 1906 when 9,712 cases and 1,063 deaths were reported. However, this occurred before the days of filtration and chlorination in 1913, when Philadelphia was widely known as a typhoid city.

As a further safeguard against the dissemination of this disease, the Board of Health in 1914 promulgated compulsory pasteurization of the city milk supply. Prior to pasteurization many of our local outbreaks were traced to milk infected by patients or carriers, including 46 cases in 1906, 25 in 1908, and 149 in 1912.

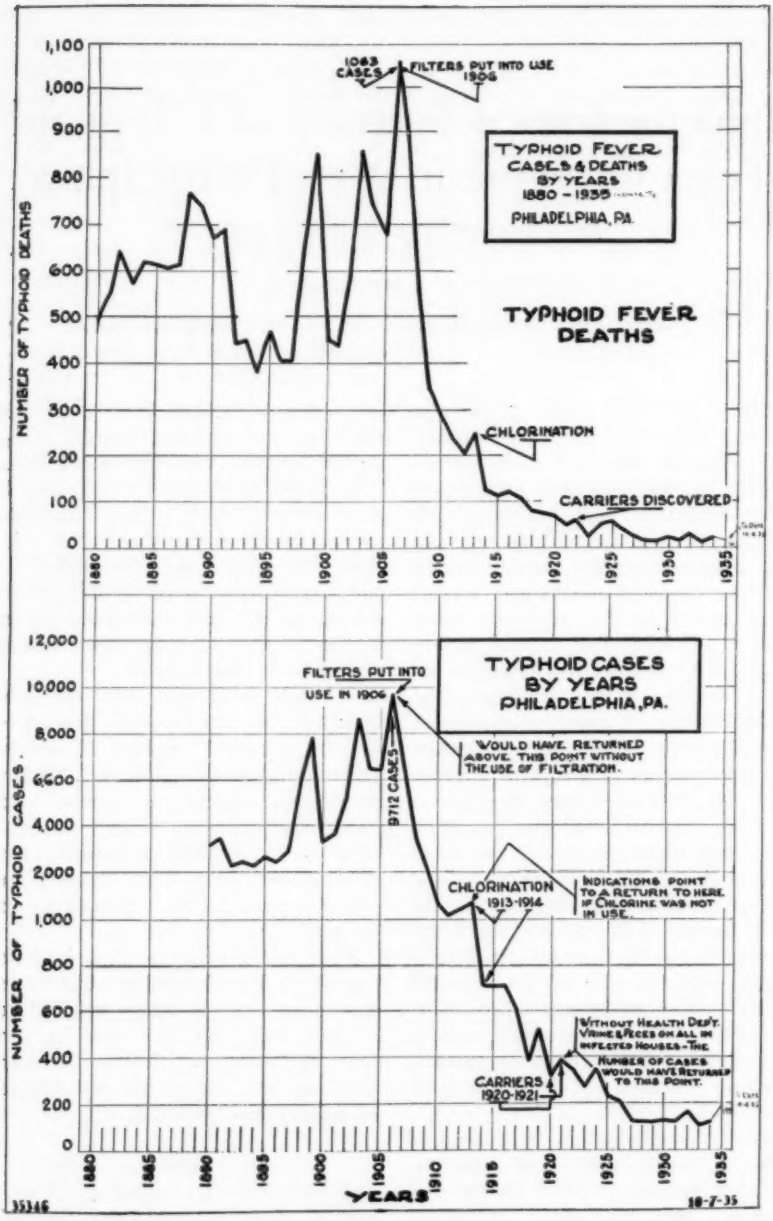
After the elimination of water and milk as major sources of infection, attention became centered on the prevention, detection, and control of chronic carriers, who in 1922 were placed under the jurisdiction of the Department of Public Health. In this same year a striking example of a carrier infection occurred in the home of a physician when 3 of his family were infected by the cook. This same carrier before recognition, had conducted an oyster saloon in South Philadelphia, and, in working back, is regarded as the probable source of infection in a number of obscure local outbreaks in this locality.

It would seem that, with the safeguarding of our water and food supplies, sanitary disposal of sewage, control of known cases and carriers, the further reduction in typhoid fever should be effected through epidemiological investigations of sporadic cases or epidemics, to discover carriers and prevent them from spreading the disease.

This recent outbreak is a reminder that the gains apparently made in the control of typhoid fever are still insecurely held and that only by contant vigilance and tireless investigation can the safeguards promulgated be applied and enforced.

HISTORY

A Memorial Day supper given by a Legion Post was attended by 264 patrons and guests; 228 of whom were Philadelphians, 110 males, 118 females


1,100
1,000
900
800
700
600
500
400
300
200
100
0
NUMBER OF TYPHOID DEATHS
1063 CASES
FILTERS PUT INTO USE 1906
TYPHOID FEVER CASES & DEATHS BY YEARS 1880 - 1935
PHILADELPHIA, PA.
TYPHOID FEVER DEATHS
CHLORINATION
CARRIERS DISCOVERED
1880
1885
1890
1895
1900
1905
1910
1915
1920
1925
1930
1935
12,000
10,000
8,000
6,000
4,000
2,000
1,000
800
600
400
200
0
NUMBER OF TYPHOID CASES.
FILTERS PUT INTO USE IN 1906
TYPHOID CASES BY YEARS PHILADELPHIA, PA.
WOULD HAVE RETURNED ABOVE THIS POINT WITHOUT THE USE OF FILTRATION.
8712 CASES
CHLORINATION 1913-1914
INDICATIONS POINT TO A RETURN TO HERE IF CHLORINE WAS NOT IN USE.
WITHOUT HEALTH DEP'T. VISITS & PIECES ON ALL IN INFECTED HOUSES - THE
NUMBER OF CASES WOULD HAVE RETURNED TO THIS POINT.
CARRIERS 1920-1921
YEARS
35346
10-7-35

—76 adults and 152 children. There were approximately 36 persons living in townships adjacent to Philadelphia who attended the supper.

The epidemic began with 2 cases of typhoid fever, mother and child, living in West Philadelphia, reported June 18, 1935, from a hospital. Following the routine investigation by our medical inspector it was learned that the mother and child had visited various places including the Post supper, and that the mother had been drinking spring water at her place of employment.

On June 20, 2 children living in the neighborhood of the first patients were taken to a Delaware County hospital, with suspected typhoid—diagnosis confirmed later. The following day 3 other children in the same neighborhood were reported as having typhoid by the attending physician. All the patients gave a common history of having attended the supper at the Post.

By elimination of other sources of infection the supper seemed potentially the most incriminated, and an investigation of all food and drink served, as well as of all persons who prepared and handled it, was immediately undertaken. The sanitation, plumbing, and water supply were checked by the Division of Sanitation. Coincidently, all physicians and hospitals in the region involved, were notified by telephone to be on the lookout for suspected cases of typhoid fever, and warned of the possibility of an epidemic.

On June 21, a list of all who attended the supper was obtained from the officers of the Legion, and divided among 5 inspectors who immediately started to visit all of the homes involved, inquired regarding any past or present illness, the type of food eaten, whether any one handled or prepared food or drink served, whether accompanied by guests, and urged typhoid immunization by the family physician or Department of Public Health.

All those who supplied or handled food or drink at the supper were sent to the Laboratory of Hygiene to submit blood for Widals, and urine and feces for bacteriological examination. On June 23, 7 were sent to the laboratory, and thereafter 7 daily until all, numbering 44—20 food servers and 24 employed in 8 stores supplying food—had reported. Many found negative were required to submit 2 additional consecutive negative specimens.

The following foods were served: home-made potato-salad, cold boiled ham, olives, pickles, boiled eggs, butter, tomatoes, lettuce, home-made cakes, cheese, ice cream, bread and rolls; with beer, soda water, coffee, cream for coffee, and city tap water. Each article of food was investigated individually.

The bulk of the food was supplied by one grocer, who, with 3 employees, was among the first to submit specimens at the laboratory. The potato-salad, which from the first was under suspicion, was made by these 4 persons.

June 23 and 24, 13 additional cases, with histories of having attended the supper and of having partaken of the potato-salad, were reported to the department.

The Post supper was served with 150 lb. of potato-salad, and a few pounds of the same batch were sold over the counter to customers. Only 1 family, mother and daughter, could be located, who, on May 30, purchased some potato-salad and were subsequently taken ill with typhoid fever and hospitalized. They did not attend the supper.

On June 22, it was learned that a portion of potato-salad left over from the supper had been stored in the ice-box of the Legion Post House, and on May 31, was given to a man, the father of 6 children none of whom had attended the supper. The father, mother, and 1 child ate the salad. The mother and child came down with typhoid, the

father escaping. Attention was focused on the potato-salad as the source of infection, since all patients, including children, gave histories of having eaten it.

On June 25, the laboratory reported as positive the urine and feces of a woman who was one of the 4 who prepared the potato-salad. This person was removed to the Philadelphia Hospital for Contagious Diseases, and 2 additional successive positive cultures on feces, and 2 on successive biliary drainages were reported by the Laboratory of Hygiene.

On June 28, a positive fecal culture was obtained on a second woman who assisted in serving food at the supper. She too was removed to the hospital, and 2 additional positives on feces and bile were obtained. Both gave positive Widal reactions, Carrier No. 1, 1–60 dilution, and Carrier No. 2, 1–300.

Following a careful investigation of the duties at the supper of Carrier No. 2, which consisted in passing trays without directly handling food, this department felt that she could be definitely eliminated as the source of infection, and was convinced that Carrier No. 1 was the true source.

A brief social and medical history of this carrier follows:

Carrier No. 1—She is white, born in Germany, 58 years old, weighing 185 lb., and has lived at the grocery noted, for the past 25 years. There is a history of illness 8 years ago when she was confined to bed for a period of 2 to 3 weeks, with fever and occasional delirium. The attending physician recalls treating this patient, but has a hazy recollection as to the nature of her illness. She claims to have previously prepared potato-salad in the same German way, and rarely prepared other foods, but usually waited on customers at the grocery. Apparently she is an intermittent type of chronic carrier, but in the preparation of this particular lot of potato-salad evidently introduced a virulent organism in massive dosage.

Our typhoid incidence in the city ward in which the grocery is located, shows that only 10 of 23 cases reported from 1928 to onset of recent outbreak could not be definitely traced. Whether or not she was responsible for any of the 10 cannot be determined.

After her discharge from the Philadelphia Hospital for Contagious Diseases she was admitted to one of our Philadelphia hospitals where she was studied preliminary to a contemplated cholecystectomy for the carrier condition. The laboratory findings paralleled those previously found. Cultures taken of material under nail of third finger, left hand, and from skin folds about anus and cleft of buttocks, were positive. On July 18, a cholecystectomy was performed, and bile ducts injected with 1 per cent pyoktanin. One large gall stone was found in gall-bladder, the mucosa of which was thickened and inflamed showing fibroid changes, and was positive for *B. typhosus*. The free bile and inspissated bile covering calculus gave pure cultures. Five days after operation, cultures of urine and feces were negative. Patient was discharged August 13, and since has had 3 positive and 1 negative cultures from fecal specimens. She is not living at the grocery, and is under observation of the Department of Public Health conforming to rules and regulations governing chronic typhoid carriers.

The greatest number of cases reported in a single day was 25 on June 27, and the last was reported on July 31, totaling 86 cases with 6 deaths, a case death rate of 7 per cent (see Table I).

Every effort was made to hospitalize cases, and immunize contacts. There were 31 cases admitted to the Philadelphia Hospital for Contagious Diseases, 35 at the Philadelphia General Hospital, 17 at other Philadelphia hospitals, and 3 remained at home, a total of 83 or 96.5 per cent hospitalized. There were 2 instances in which 5 cases occurred in one house; 6 primary and 4 secondary. There were 242 persons immunized at the Post headquarters by 7 medical inspectors who functioned one evening each week for 4 consecutive weeks. This number does not include those immunized by the attending physicians of whom we have no accurate record. There were 145 homes visited by our inspectors,

TABLE I

WEST PHILADELPHIA EPIDEMIC—TYPHOID FEVER, 1935

86 CASES—6 DEATHS

Cases—Age Groups

	1–5 Years	*6–10 Years*	*11–15 Years*	*16–20 Years*	*21–30 Years*	*31–40 Years*	*41–50 Years*	*Over 50 Years*	*Total*	*Sex Percentage*
Male	1	13	14	2	0	1	3	1	35	41
Female	3	15	12	4	2	9	6	0	51	59
Case total	4	28	26	6	2	10	9	1	86	
Case percentage	4.7	32.6	30.3	6.9	2.4	11.6	10.4	1.1	100	

Deaths—Age Groups

	1–5 Years	*6–10 Years*	*11–15 Years*	*16–20 Years*	*21–30 Years*	*31–40 Years*	*41–50 Years*	*Over 50 Years*	*Total*	*Sex Percentage*
Male	0	0	3	0	0	1	0	0	4	66.7
Female	0	0	0	1	0	0	1	0	2	33.3
	0	0	3	1	0	1	1	0	6	

and approximately 5,000 visits made by them. Every house was visited daily for 10 days, then every other day for 6 days, and 2 final visits thereafter, making 15 visits to every house over a period of 3 weeks. There were 9 secondary cases.

The addresses of known out of town contacts and patrons attending the supper were forwarded to respective health officers for investigation and observation. We have no accurate record of how many such cases developed typhoid, but know of at least 6.

SUMMARY

1. Description of a serious outbreak of typhoid fever among patrons and guests attending a supper given in honor of an American Legion Post.

2. The promptness of discovery of a chronic typhoid carrier in the rôle of a food handler who contaminated potato-salad which caused the outbreak, and the discovery of the source of the epidemic within 5 days after the first case was reported to the Department of Public Health.

3. The efficiency and promptness with which cases were discovered and hospitalized, and contacts safeguarded and immunized.

4. The earnest coöperation received from physicians, hospitals, Post officials, and the laity in the control and abatement of this epidemic.

5. The present-day status of the chronic typhoid carrier in the incidence of typhoid fever, and the carrier problem as a perplexing factor to public health administration.

Procedures Employed by the Laboratories of the Departments of Health in the Various States and Some of the Larger Cities of the United States in the Sero-Diagnosis of Syphilis as of December, 1935

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THE desire to ascertain the methods of procedure used in the sero-diagnosis of syphilis by the public health laboratories over the country, recently prompted the laboratory of the Georgia State Department of Health to send a questionnaire relating to this work to the departments of health of all the states and 15 of the larger cities.

Their coöperation in this study was splendid indeed as replies were received from all of them. A compilation of a portion of this information is presented below. The wording of the replies has been closely followed without assuming to name the procedures.

States	*Complement-Fixation*	*Precipitation*	*Annual No. Specimens*
1. Alabama	Kolmer	Kahn	85,000
2. Arizona	No serological diagnosis of syphilis		
3. Arkansas	3 antigen-antisheep	Kline	20,000
4. California	Kolmer	Kahn	36,000
5. Colorado	None	Kahn	15,000
6. Connecticut	2% chol. ant. 4 hr. fixation in refrig. sheep hem. system	Kahn	50,000
7. Delaware	Kolmer	Kahn	6,100
8. Florida	None	Kahn	132,000
9. Georgia	Kolmer	Kahn on request	75,000
10. Idaho	Kolmer	Kahn	18,000
11. Illinois	Kolmer on request	Kahn	100,000
12. Indiana	Kolmer	Kahn and Kline	49,000
13. Iowa	Kolmer	Kahn	39,000
14. Kansas	Kolmer	Kahn	30,000
15. Kentucky	Similar to Kolmer: multiple antigens used	Kahn technic using Kline antigen	65,000
16. Louisiana	Original Wassermann modified. Two antigens used	Kahn, Kline and Johns occasionally	10,000
17. Maine	None	Kahn	12,000
18. Maryland	Kolmer (quantitative)	Kahn	23,000
19. Massachusetts	None	Hinton	140,000

States	Complement-Fixation	Precipitation	Annual No. Specimens
20. Michigan	None	Kahn (standard and presumptive) Kline as supplementary	114,000
21. Minnesota	Kolmer	Kline	135,000
22. Mississippi	Old Hygienic Laboratory	Kline-Young	45,000
23. Missouri	None	Kahn	17,000
24. Montana	Kolmer	Kahn	13,000
25. Nebraska	Own modification	None	30,000
26. New Hampshire	Kolmer	Hinton	15,000
27. New Jersey	Modified Kolmer 4 hr. fixation in icebox	Kahn on positive Wassermann	50,000
28. New York	New York State Standardized method	Making comparative study of several	125,000
29. New Mexico	Kolmer	Kahn	20,000
30. Nevada	Kolmer	Kahn on request	4,000
31. North Carolina	New York City method of 1918	Meinicke	110,000
32. North Dakota	Kolmer	Kahn	6,500
33. Ohio	Kolmer (4 hr. fixation in icebox)	Kahn	82,500
34. Oklahoma	Modified Kolmer (Short incubation)	Kline	50,000
35. Oregon	None	Kahn	12,000
36. Pennsylvania	Own modification	Standard and Presumptive Kahn on request	80,000
37. Rhode Island	Kolmer	Kahn and Hinton	8,000
38. South Carolina	Wassermann Park and Williams: Pathogenic Organisms	Kahn	60,000
39. South Dakota	Own modification	Kahn	6,500
40. Tennessee	Kolmer	Kahn	40,000
41. Texas	Kolmer	Kahn	39,000
42. Utah	Kolmer	Kahn	9,000
43. Vermont	Modified New York City Method	None	6,000
44. Virginia	Craig (modified)	Kahn on request Routinely in Branch Laboratories	60,000
45. Washington	Kolmer	Kahn	24,000
46. West Virginia	Kolmer (check in doubtful cases; Colloidal gold on spinal fluids)	Kahn	44,000
47. Wisconsin	Own modification	None	120,000
48. Wyoming	No state laboratory		
49. Army Med. School	Craig modification	Kahn	18,000
50. Navy Med. School	Neil modification	Kahn Kahn official test for Navy	3,600

Cities	Complement-Fixation	Precipitation	Annual No. Specimens
1. Baltimore	Modified Wassermann (not specified)	Kahn when indicated	25,000
2. Boston	Wassermann (not specified; two antigens used)	Kahn and Hinton on request	15,000
3. Buffalo	N. Y. State standardized method approved	Kahn and Kline on request	40,000

Cities	*Complement-Fixation*	*Precipitation*	*Annual No. Specimens*
4. Chicago	Wassermann (not specified)	Kahn	57,000
5. Cincinnati	Wassermann (not specified; icebox fixation)	Kahn	12,000
6. Cleveland	None	Kline and Young, and Kahn	20,000
7. Detroit	None	Kahn (standard and presumptive)	45,000
8. Los Angeles	Kolmer	Kahn	26,000
9. Memphis	None	Kahn (Kline used as check)	40,000
10. New Orleans	Wassermann (not specified; two antigens used)	None	18,000
11. New York	New York State method	Kline	230,000
12. Philadelphia	Wassermann (not specified)	Kahn	25,000
13. Pittsburgh	Wassermann (not specified)	None	8,000
14. San Francisco	Kolmer	Kahn	34,000
15. St. Louis	None	Kahn	32,000

This study embraces the activities of the laboratories of 46 of the states and 15 of the larger cities, together with the Medical Schools of the Army and Navy, in the serology of syphilis on nearly 3 million specimens annually. Two states do not offer this service.

Eleven of these 63 laboratories, representing 579,000 specimens, are using flocculation tests only, and 5 representing 182,000 specimens are using the complement-fixation test only. Both kinds of tests are employed in 47 in the examination of 2,038,000 specimens.

Twenty-four of the laboratories using complement-fixation employ Kolmer's method, and 5 are using modifications thereof. The others are divided as follows: Method not specified, 11; own modification, 4; New York State Method, 3; Craig Modification, 2; Neil Modification, 1; original Wassermann modified, 1; Hygienic Laboratory Method, 1.

The Kahn test is relied upon alone in 8 laboratories and is used in 41 others of this group. The Kline test is employed in 10, Hinton in 3, and Meinicke in 1.

The combination of the Kolmer and Kahn methods is apparently the more popular, being employed in 25 of these laboratories.

Milwaukee's Well Advertised Gastrointestinal Epidemic

JOHN P. KOEHLER, M.D., F.A.P.H.A.
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DURING the end of March, 1936, Milwaukee received an unusual amount of publicity in the newspapers throughout the United States on account of an epidemic of gastrointestinal disease.

While the epidemic was very extensive, the estimate of 120,000 cases by a newspaper correspondent, was very generous. The 2 deaths which were announced in the newspapers, were not due to the epidemic, but to other more serious causes, although each death certificate did mention gastrointestinal influenza as the contributory cause. The epidemic was most noticeable among school children where the absenteeism increased from a normal of 5 per cent to 15 per cent over a period of 3 or 4 days. The majority of the adults who suffered from the ailment, were not sick enough to remain away from their regular occupation.

The symptoms usually started with nausea followed by vomiting and in most cases by diarrhea. Most persons felt relieved as soon as they had vomited. A few had fever and were compelled to remain in bed for 2 or 3 days. Such patients had the symptoms and appearance of what is commonly called la grippe. The symptoms in many patients were very similar to those present in an attack of acute food poisoning.

Nose and throat cultures of patients showed nothing abnormal. Stool examinations were not made because patients were not sick enough to go to hospitals nor sick long enough for the Health Department to make arrangements for the collecting of stools. According to the experience of others, such stool examinations probably would not have had any diagnostic value.

Some physicians reported an increase of appendicitis cases following the epidemic. Since appendicitis is not a reportable disease, there is no way of knowing how much of an increase occurred excepting as it is reflected in the mortality rate. Fifteen deaths from appendicitis were reported during the month of April, compared to a total of 22 for the 3 previous months, 5 for May, and an average of 7 deaths for April, during the last 5 years.

The Milwaukee epidemic was no different from other gastrointestinal disturbances occurring in other communities, with the probable exception that it was somewhat more extensive and explosive than is generally the case. However, due allowance must be made for the fact that other communities may not have had their epidemics during a bitter municipal election campaign and in that way escaped unnecessary publicity. The first reports to the Milwaukee Health Department of gastrointestinal disturbances came from pediatricians during the last week of February. They reported that babies and younger children were suffering from diarrhea. The city water at that time had a bacteria count of zero to

2 per c.c. with an occasional 10 c.c. tube showing gas in 48 hours, but no confirmation for *B. coli*. The water at this time had a bad taste and odor, which had never been noticeable before. The taste and odor were similar to those found in old shallow wells with decayed wooden casings. No turbidity was noticeable.

It was assumed that the melting of the winter's accumulation of snow and the breaking of the ice which had covered the lake for a long period, had something to do with the unusual taste and odor. The water showed a few algae which may have contributed to this unusual taste and odor. The Milwaukee River, which empties into Lake Michigan, about 4 miles south of the water intake, was very high the last part of February and the first part of March due to the spring thaw. The Sewage Disposal Plant, which treats all of Milwaukee's normal flow of sewage, discharges its effluent into Lake Michigan at the outlet of the Milwaukee River. Beginning with March many reports of gastrointestinal cases came to the Health Department from families which were inclined to blame the drinking water.

Since the drinking water showed absolutely no evidence of pollution, it was always defended by the Health Department. The complaints against the drinking water continued to increase gradually, even after the obnoxious taste and odor had disappeared. Nothing in the examination of either the raw or the chlorinated water, indicated any sign of pollution until the afternoon of March 24, when the bacteria count rose from an average of 3 per c.c. to 61 per c.c. with four of the five, 10 c.c. tubes showing gas in 48 hours. On March 25, the morning and afternoon bacteria counts were 52 and 84 respectively, with five 10 c.c. tubes showing 48 hour gas and confirming for *B. coli*. As soon as this report was available, which was on the morning of March 27, the public was notified of the situation and directed to boil the drinking water. On about the same day, the gastrointestinal cases increased to epidemic proportion. The peak of the epidemic as nearly as could be determined, occurred on March 30.

After March 27, the water began to improve very rapidly. On April 3, the bacteria count was 3 per c.c. and no gas in any of the tubes. The only confirmation for *B. coli* was three out of five and two out of five 10 c.c. tubes of the morning and afternoon samples of March 25. The order to boil the drinking water was not lifted until the morning of April 7, when the bacteria count was 1 per c.c. and there was no 48 hour gas in any 10 c.c. tubes.

Naturally, all during this time, the most important question to be answered by the Health Department was whether or not the drinking water was responsible for the epidemic. Circumstantial evidence certainly pointed toward the drinking water. The Health Department, after analyzing all of the various available evidence, decided that the drinking water was not responsible for the epidemic. This position, obviously, seemed very inconsistent to many people because it was difficult for them to understand why the Health Department's order to boil the drinking water and the epidemic appeared simultaneously, if there was no connection between the two.

The fact that some of Milwaukee's suburbs which had their own water supply, claimed to be free from the epidemic also made it very difficult to absolve Milwaukee's drinking water. Some of the reasons that prevented the Health Department from blaming the water when the epidemic first appeared are as follows:

1. Records show that the so-called gastrointestinal influenza appears periodically in every community and never has been related to any particular water supply.

2. Many gastrointestinal cases had been reported for weeks before the peak of the epidemic arrived and long before the drinking water showed any evidence of pollution. The fact that *B. coli* was present in the water for only 1 day when the epidemic began, scarcely seemed serious enough to warrant such an extensive outbreak of gastrointestinal trouble, especially when the bacteria count and turbidity were both very low and when chlorination was effective at all times.

3. Only rarely did several members of the same family become ill at the same time. Usually a day or two intervened as is the case when you have personal contact infection in homes.

4. The fact that other communities near Milwaukee having their own water supply reported no substantial increase in gastrointestinal ailments, was not given much consideration because Milwaukee has had other epidemics not in any way related to drinking water which other communities near Milwaukee escaped at least temporarily.

5. Reliable information from other cities showed that Milwaukee was not the only city experiencing an increase in gastrointestinal disease.

6. The Health Department knew of several persons who were very ill with the prevailing gastrointestinal disturbance, who stated positively that they had been drinking nothing but spring water for at least a week previous to their illness.

Additional reasons which have been established subsequent to the epidemic, that make it difficult to believe that the drinking water had anything to do with it, are as follows:

1. At least 6 large institutions in and outside of the city using city water, entirely escaped the epidemic due to their isolation. One orphanage with 250 children and 50 sisters, was entirely free from the ailment, although they all drank city water and did not boil it until requested to do so by the Health Department.

2. Several of the schools in the outlying districts were comparatively free from the disease due to their isolation.

3. The survey made by the Health Department nurses showed that families using spring water had just as high a percentage of gastrointestinal cases as those drinking lake water. They also obtained the information that at least 50 per cent of all patients interviewed, had contracted the disease 3 or more days after they had used nothing but boiled or spring water.

4. Although the Health Department nurses reported that 95 per cent of the people either boiled the water or drank only spring water on and after March 27, the peak of the epidemic was not reached as stated previously until March 30, and subsided gradually. Even as late as April 22, a considerable number of cases were reported in one school.

5. Only 3 typhoid fever cases were reported to the Health Department from January 1 to February 6. No case has been reported from February 7 to May 15. From January 1 to May 15 there have been only 6 deaths from gastroenteritis in children under 2 years of age, which is the lowest number of deaths for this period in the history of the Health Department.

6. Eye, ear, nose and throat specialists reported an increase following the intestinal epidemic, of otitis media and other ailments associated with upper respiratory infections.

When the drinking water is responsible for disease, health officers should not hesitate to admit it. On the other hand, we should not be willing to blame the drinking water merely because it appears to be the easiest way out of it. The average individual will nearly always blame something that he has drunk or eaten whenever he has some gastrointestinal disturbance, but that is no reason why the family physician or health officer should agree with such a diagnosis. Blaming the water supply of a community for an epidemic is a very serious matter and should only be done when the blame can be definitely established. If we are able to have periodic extensive epidemics of colds due to a virus, it is not difficult to believe that a virus may also be responsible for other types of epidemics.

Incidence and Severity of Hookworm Infestation in East Texas

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THE Hookworm, *Necator Americanus*, was first described by Stiles [1] in 1902. Following Stiles's discovery, a great deal of investigation was carried on by the International Health Board in the interest of public health and by Kofoid [2] in 1918 in the interest of the army. Since that time little investigation has been made in Texas, and only a few surveys have been completed in other southern states. The 1927 *Annual Report* of the International Health Board [3] stated that the hookworm problem in the South had been solved. Stiles [4] pointed out that this is a fundamental error, and is partly responsible for the lack of inquiry and lack of interest in this important field of parasitology.

Much more valuable work can now be done by use of newer methods. Some modifications of Kofoid's [5] or other salt flotation methods give a larger number of positives where the infestation is light. The newer methods of quantitative estimation by counting the number of eggs per gram of feces have enabled workers to tell whether the patients carry a small or large number of worms. While these newer findings are not directly comparable with the older, it is generally supposed that the degrees of infestation which are now found are on the whole lighter than those of 10 or 20 years ago; however, recent papers [6, 7, 8] do not support the conclusion that the hookworm problem is solved.

The present study was made during the winter months of 1932 and 1933 in 5 East Texas counties as given in Table I. Of 1,883 pupils examined, 1,751 were white and 132 colored. There were 614 whites, or 35 per cent, infested, but only 2, or 1.5 per cent, of the 132 colored. Of the total number examined, 27, or 1.4 per cent, were infested with dwarf tapeworm, *Hymenolepsis nana;* 12, or 0.6 per cent, were found to have a double infestation of these two parasites. Few other parasites were found.

Table I shows the percentage of infestation for each school district. The number examined in some was not large enough to be a very valuable index of that community. On the whole, the data agree with the findings of 20 years earlier in regard to geographical location, condition of soil, and higher or lower economic levels. The total average of 35 per cent infestation for the entire study of whites is somewhat deceiving, because some of the poorest sandy-land districts, located in the river bottoms or nearby, show as high as 80 per cent infestation for those examined. In the redland districts the infestation ran below 10 per cent in some cases. These districts have improved farms, little timber, and better living conditions, therefore a higher economic level.

Of the positive cases, 237 were studied by the Caldwell and Caldwell [9] Quantitative Method. Where the largest number of cases occur, more heavily infested cases are found. Where the percentage of cases is low, the infesta-

TABLE I

SUMMARY OF HOOKWORM EXAMINATIONS IN EAST TEXAS

During January, 1933, the Texas State Board of Health published in mimeograph form the following summary of the work done

Data for 1932

	Number Examined	*Hookworms Found*	*Percentage Infestation*
1 Negro school	132	2	1.5
5 town schools	353	37	10.0
16 rural schools	341	163	48.8
Total specimens examined	826		

About 2 per cent of *H. nana* found; less than 1 per cent all others

Data for 1933 and 1934

School	*County*	*Number Examined*	*Number Positive*	*Percentage of Positives*	
a	Angelina	40	6	15.0	
a	Nacogdoches	50	12	24.0	
b	"	21	11	52.3	
c	"	55	7	12.7	
a	Panola	14	1	7.1	
b	"	28	12	42.8	
c	"	53	30	56.6	
d	"	44	3	6.8	
e	"	14	9	6.4	2 dwarf tapeworms
f	"	45	1	0.2	3 dwarf tapeworms
g	"	5	1	2.0	
a	Sabine	62	52	83.8	Some are heavily infested
b	"	134	24	17.9	
c	"	88	30	34.0	7 dwarf tapeworms
d	"	28	14	5.0	
a	San Augustine	61	23	37.7	
b	" "	69	12	17.4	
c	" "	102	64	62.7	
d	" "	12	5	41.6	2 dwarf tapeworms
e	" "	46	39	84.6	Most infestations rather heavy
f	" "	31	11	35.4	
g	" "	49	13	26.5	
	Totals	1,151	390	33.9	

About 2 per cent of other parasites besides hookworms were found.

tion is very light to light. The methods of quantitative estimation have not found their way into general practice, and few of our state boards of health are now using these methods in their laboratories. Nevertheless, it is a very valuable bit of knowledge to the practising physician to know the degree of infestation, as light cases may be given only 1 or 2 treatments; whereas, heavy cases need further treatments. Where quantitative estimations are used, it might be well to reëxamine light cases after 1 treatment.

The accompanying data (Table I) contain a summary of the work done

in 1932, published in mimeograph form by the Texas State Board of Health, and a summary of work done in 1933 and 1934, giving the total number examined in each school district, the number of hookworm infestations, the percentages of infestations, and the number having dwarf-tapeworm, *Hymenolepsis nana*.

Analysis of degrees of infestations is given in summary only for all of the positive cases studied, as follows: Very light 54.2 per cent; light 27.9 per cent; moderate 16.9 per cent; and heavy 1.0 per cent.

There is no close agreement among quantitative workers about what constitutes the different groups of infestation. The divisions here are made according to the method of Smillie and Spencer [10] in their Alabama work. The first group, very light, contains all those who have an egg count per gram feces below 600, which indicates from 1 to 25 worms; the second group, light, has an egg count of from 600 to 2,099, which indicates from 26 to 100 worms; the third group, moderately infested, has 2,100 to 11,099 eggs per gram feces, which corresponds to 101 to 500 worms; the fourth group, heavily infested, runs from 11,100 or more eggs per gram of feces, and indicates over 500 worms. Chandler [11] states that it is better to report egg counts only than to report worm load, as the latter introduces another variable element. We have chosen to report both, for the purpose of general information.

These 4 classification groups give a valuable indication of the degree of infestation in the East Texas counties studied. It is assumed by some that only light infestation still exists. In one school 12.5 per cent of the positives were heavily infested; in another, 44.7 per cent of the positives were moderate infestations. A large number of cases fall in the light and very light columns.

Investigators disagree on the amount of injury, mental and physical, done by the light and very light infestations. The writer is continuing a study of this problem, and will report later further findings on mental and physical retardation. Data on several hundred cases have been collected and will be analyzed and reported later.

It should be noted that this study has been made for scientific information and not for comparison between districts or counties. It indicates that widespread hookworm infestation exists in East Texas, that there is between 1.5 per cent and 2.0 per cent infestation of dwarf tapeworm, *Hymenolepsis nana*, and that a few children harbor both parasites.

The quantitative estimation of the degree of infestation adds important information concerning conditions in East Texas. It is hoped that this study may be an incentive for further work in solving the problem of intestinal parasites in East Texas and in all the southern states.

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A Meeker Burner With Auxiliary Flame For Bacteriological Use

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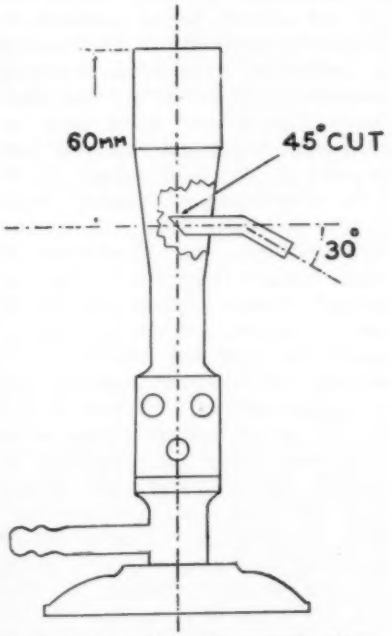
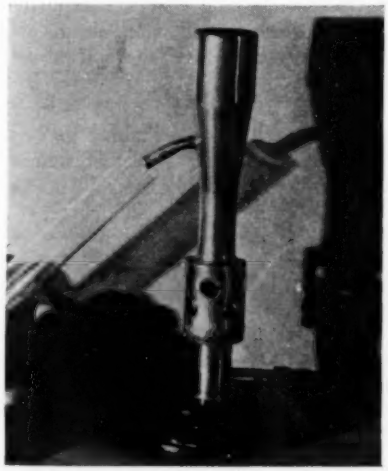
THE usual flaming of the mouth of a tube or flask containing bacteriological culture media will not satisfactorily remove the fibers of cotton which frequently adhere inside the neck during the tubing and sterilization. In work with pathogenic organisms, or in disinfectant testing, the infection of these fibers when the medium is inoculated offers a possibility of danger to the worker as well as inaccurate results in the experiment. An attachment of the type illustrated offers an easily constructed device for the burning of any cotton fibers inside the neck of a test tube or flask.

The burner is constructed from a Meeker burner and a short length of ¼" copper or brass tubing. The piece of tubing should be about 3" long, with one end cut perpendicular and the other at 45° to the axis. The tube is bent at an angle of 30° at about



1" from the end in the manner shown in the diagram. The tube is soldered into a ¼" hole in the burner about 2⅜" from the top. The end cut at 45° should be at the center of the burner.



The side arm deflects a portion of the gas-air mixture which gives a flame similar to that of a microburner but deflected downward at an angle convenient for use. A small stopper or cap may be placed over this tube when the auxiliary flame is not desired.

Notes on Swimming Pool Sanitation Control

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THE sample collecting technic and and residual chlorine standards developed for better control and operation of swimming pools have undergone marked changes in the last few years. These changes were based upon experimental results and have now been included in the 1935 Report of the Joint Committees on Bathing Places of the American Public Health Association and the Conference of State Sanitary Engineers.[1] The important changes recommended are the use of sodium thiosulphate treated bottles for collecting swimming pool samples for laboratory analysis, and the maintenance of a minimum of 0.4 and 0.7 p.p.m. residual chlorine in the pool water during use, depending on whether chlorine or chloramine is used. It is presumed that those concerned with swimming pool sanitation will be interested in viewing critically the significance of these changes. To this end, the actual effect of these changes as reflected by the bacteriological results on samples collected from typical pools, indoor and outdoor, both modern and antiquated in construction and equipment, during a 2 year period of observation may be of interest.

Five 10 c.c. portions of each sample collected were examined for *B. coli*, partially confirmed on endo, and a plate count was made of each sample. All bacteriological analyses were made according to *Standard Methods*. A test for residual chlorine was made of pool water at the time each sample for bacteriological analysis was collected. The pH of the pool waters for the 2 year period was as follows: 55 per cent of pools averaged 8.0 to 8.4 pH, 42 per cent averaged 7.1 to 7.9 pH, and 3 per cent, or 1 pool, averaged 6.9 pH.

Preparations of the bottles for sampling was accomplished according to Option 1, Report of the Joint Committees in Bathing Places, except that sterile sodium thiosulphate solution was added aseptically after the bottles were sterilized.

During 1934–1935, 1,075 samples were collecetd from swimming pools in treated bottles, and an equal number were collected simultaneously in un-

TABLE I

THE INFLUENCE OF SODIUM THIOSULPHATE TREATED BOTTLES ON THE BACTERIOLOGICAL RESULTS OF SAMPLES OF SWIMMING POOL WATER COLLECTED DURING WINTER AND SUMMER SEASONS

	All Months		*Summer Months June-July-August*		*Winter Months*	
Collection Bottle	*Per Cent 10 c.c. Tubes Positive*	*Per Cent Plates Over 200 per c.c.*	*Per Cent 10 c.c. Tubes Positive*	*Per Cent Plates Over 200 per c.c.*	*Per Cent 10 c.c. Tubes Positive*	*Per Cent Plates Over 200 per c.c.*
Treated	3.6	10.7	9.0	20.4	2.1	7.7
Untreated	2.0	7.6	4.1	11.9	1.2	6.4

TABLE II

THE INFLUENCE OF RESIDUAL CHLORINE ON THE BACTERIOLOGICAL RESULTS ON SAMPLES OF SWIMMING POOL WATER COLLECTED DURING WINTER AND SUMMER SEASONS

	All Months		*Summer Months June-July-August*		*Winter Months*	
Residual Chlorine	*Per Cent 10 c.c. Tubes Positive*	*Per Cent Plates Over 200 per c.c.*	*Per Cent 10 c.c. Tubes Positive*	*Per Cent Plates Over 200 per c.c.*	*Per Cent 10 c.c. Tubes Positive*	*Per Cent Plates Over 200 per c.c.*
Minimum or Over	1.7	4.3	5.3	11.6	0.2	1.4
Less than Minimum	9.5	29.9	15.8	42.4	3.4	18.1

treated bottles. Table I indicates the results of treated compared to untreated bottles, and the effect of seasons.

During 1934–1935, 4,362 samples were collected from swimming pools. Table II indicates the effect of residual chlorine content on bacteriological results, and also the effect of season. All of these samples were collected in bottles treated with sodium thiosulphate.

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Annual Science Exhibition

THE annual meeting of the American Association for the Advancement of Science and its Associated Societies will be held in Atlantic City, December 28, 1936, to January 1, 1937. This Association with an individual membership of 18,000 has associated or affiliated with it over 150 other scientific societies. Its annual meetings bring together representatives of all sciences.

The leading feature of the meeting in Atlantic City will be the Annual Science Exhibit which is expected to be the most successful in the history of the association. The leading American scientists have been generous with their time and money in building up the exhibition to its present distinction. It offers an objective means for enhancing the belief in the intelligence and integrity of manufacturers in the utilization of science. To the scientists in various fields, apparatus, equipment, and demonstration are more meaningful than formally presented papers. Thus the breach between the branches of science is lessened and the exhibition becomes an asset toward democracy.

Participation in this exhibit will be welcomed. Address communications to F. C. Brown, Director of Exhibits, American Association for the Advancement of Science, Smithsonian Institution Building, Washington, D. C.

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A GREAT MEDICAL LIBRARY

WE wonder how many of our readers, and especially members of our Association, know the history of the Army Medical Library, or, as it was called prior to 1922, the Library of the Surgeon General's Office, and are familiar with the treasures it contains. How many of us were aware that this year marks the 100th birthday of this Library, not only one of the foremost scientific institutions of the world, but the largest medical library in existence? We, the youngest of the great nations of the world, have in 100 years outstripped all others in the collection of medical literature. Indeed, we might say that this has been done practically within 75 years.

In 1836, Surgeon General Lovell had a small collection of books in his office, but it grew very slowly until Colonel John Shaw Billings came into the picture at the close of the Civil War in 1865. In this year the first printed catalog of the Library appeared, listing 2,253 volumes—602 titles under 11 topical subdivisions. At present the Library contains 941,181 volumes, showing the truth of the statement that most of the work has been done within 75 years.

Not only is it the largest library in the world, but it is one of the best. Only some 600 medical incunabula are known, and of these, the Library owns 450, many of them first editions, the greatest number in any library in the world, and a collection which bears comparison with that of any library anywhere. Of some works, the Library has the only known copy. Of rare books published after 1500, its collection is one of the best, and it possesses 150 early medical manuscripts of great value. The oldest publication it has is Johannes Gerson's *De pollutione nocturna,* printed in Cologne in 1467.

Of a number of rare books, the Library owns several successive editions. Some of these it is practically impossible to obtain now. Indeed, it is a marvel that starting the collection as late as 1865 these rare and valuable books were obtained

at all, especially as the appropriations for purchase have always been relatively small—not at all in comparison with the funds granted to the Library of Congress. The Army Medical Library has some 15 per cent as many volumes as the Library of Congress, but its annual appropriation for purchase is only about 9⅛ per cent as large.

The Library contains a more complete file of French theses than does the great library of the Faculty of Medicine of Paris. It has a great collection of authors' presentation copies, autographed.

This Library is open to the physicians of the United States, and it is safe to say that practically no medical work of importance is written without consulting its files, which serve also the medical officials of the Army, Navy, and Public Health Services. Certain publishing houses keep a number of employees constantly in the Library doing bibliographical research, abstracting and translating, and many textbooks have been written or revised almost entirely in the Library building, though this fact is seldom mentioned.

No one can have a fair idea of this Library unless he sees it intimately and works in it. Dr. William H. Welch once said that the four great contributions of America to medical science were: "1. The discovery of anaesthesia. 2. The discovery of insect transmission of disease. 3. The development of the modern public health laboratory, in all that the term implies. 4. The Army Medical Library and its *Index Catalogue*, and this library and its catalogues are the most important of the four."

Similar expressions have come from a number of well known men. Adami, of McGill University, in writing of the *Index Catalogue* and *Index Medicus*, said: "It is difficult to realize what service those two publications have been to science the world over, or what has been the influence also to medicine the world over, of the existence of the marvelously progressive Library of the Surgeon-General's Office, and its service in bibliographical search. . . . (It is) regarded everywhere as the model medical library. . . . I would go so far as to say that the outstanding service to medicine by the United States has been this Library with its publications."

Billings once said, "Books are properly compared to tools of which the index is the handle." He carried out this idea in furthering the *Index Catalogue* of 48 ponderous royal octavo volumes (compare with the Catalogue of 1865 with 2,253 volumes), and later the *Index Medicus*. These two publications have had almost as much praise as the Library itself. The late Sir William Osler said of the *Index Catalogue*, "Its preparation is Gargantuan," and it is recognized that in no other field of knowledge is there a work comparable to this, the world's standard of medical bibliography. In 1935, Bulloch[1] said, "Among catalogues the Surgeon General's is regarded by the authorities at the British Museum as the greatest ever achieved. It has the great virtue of being a subject index, unlike that of the British Museum, which is a name index only. The story of its construction is not as well known as it ought to be." When a change in the form of the *Catalogue* was discussed, the librarian of the Royal Society of Medicine of London said, "The possibility of being deprived of the *Catalogue* in its present form is horrible to contemplate," and Sir Humphrey Rolleston, at that time Regius Professor of Physic at Cambridge and President of the Royal College of Physicians, said, "The change would be a very serious loss to all those who read or look at the scientific side of Medicine, and would, for them, bring about a condition of affairs resembling that in the first half of the last century."

One would naturally say that this invaluable and irreplaceable collection must be housed in the finest of buildings, with every convenience for the use of its treasures, and absolutely fireproof. What are the facts? In 1885, $200,000 was appropriated for the building, and in 1887, the Army Medical Library and Museum was opened to the public. It is so cramped for space that when new books are added the old ones must be taken out and many are stored in the basement. Year after year efforts have been made to obtain a proper Library building. In 1919, a site was purchased in the Army Medical Center in Washington, but up to the present time the building has not materialized.

We wish we could give here a sketch of the librarians who have served this wonderful collection and those who have been responsible for the equally marvelous catalogues and indices. We cannot select one above another, but must mention Dr. Robert Fletcher, the Father of the *Index Medicus*, without whom this publication might possibly have never come into existence. In 1910 he was awarded the gold medal of the Royal College of Surgeons, which during a century has been conferred on but 11 others.

Perhaps the majority of the profession has not recognized that this was the centennial of this great Library, which is one of America's best known and most valuable possessions. We believe that Major Edgar Erskine Hume, the present Librarian, has performed a distinct service in giving an account of the Library,[2] his predecessors in the office, and especially the history of Dr. Billings, who, although he did not found the Library, is chiefly responsible for its being what it now is. We wish we could place this history in the hands of all our readers. We hope that this review, taken from the article by Major Hume, will stimulate the interest of those who have not yet made use of the Library. Something of what it is may be gathered from this brief review, but especially from an address given in 1881 by Dr. Billings. Even at that date he was able to say, "If the entire medical literature of the world, with the exception of that which is collected in the United States, were now to be destroyed, nearly all of it that is valuable could be produced without difficulty."

REFERENCES

1. *Brit. M. J.*, Oct. 26, 1935.
2. *Military Surgeon*, 78, 4 (Apr.), 1936.

NOTE: We have in this country other notable collections of medical books, some of them generally unknown. In 1920 there appeared *The Dawn of Modern Medicine*, by Albert H. Buck, M.D., a volume for which the William Chauncey Williams Memorial Publication Fund was responsible. In his preface he speaks of the difficulties he had encountered. Although he made a search in Europe, he failed to find the sources of trustworthy information which he thought necessary. He was disposed to abandon his writing of this book altogether when he received a letter from the librarian of Transylvania College, Lexington, Ky., telling him of a collection of medical works which had been purchased in Paris in 1819, concerning largely the years from 1760 to 1830. He moved to Lexington and lived there for 7 months, during which he wrote the book, taking his material almost entirely from this splendid and rare collection.

SCARLET FEVER

THE discussion of scarlet fever in its various forms continues. In the Borough of Chelmsford, England, in 1935, there occurred an extensive outbreak which is believed to have involved some 2,000 people, though only 360 cases were reported in the Borough, and some 120 in the adjacent district. The outbreak was explosive in character, most of the cases having occurred within 10 days. Almost all of them were traced to Dairy A, which handled milk from a number

of farms, which were found to be free from suspicion, with one exception. On this place there was one milker who had been working while suffering with a very bad sore throat from August 21 to 23 inclusive. It was during these days that the main infection of the milk supply was evident.

The particularly interesting feature of this outbreak was that the great majority of the cases, 1 in 5, did not show any rash. The milker to whom the outbreak was attributed also failed to show a rash. Extensive typing showed that the organism responsible for the outbreak was a hemolytic streptococcus type 2, which was isolated from the second sample of milk examined. It was found that the milker who suffered from the sore throat without rash also harbored the hemolytic streptococcus type 2.

During the time of the outbreak a cow with acute mastitis was found, but as it did not harbor the same type of streptococcus it was exonerated. Incidentally, it is now well established that the streptococcus causing acute mastitis in cows in the great majority of instances is not pathogenic to human beings.

The reporter who studied this outbreak believes that the term "scarlet fever" in a misnomer and points out that if attention had not been concentrated on rash as a diagnostic feature of scarlet fever, the outbreak would have been recognized much earlier and probably some of its worst features avoided. The absence of the rash was also responsible for the fact that so few of the large number affected were reported, though unquestionably all suffered from the same disease, as shown by bacteriological examination.

The outbreak demonstrates once more, what has been shown so often, that the rash, which has for so many years been considered typical of scarlet fever, cannot be depended upon for diagnosis.

POLIOMYELITIS

POLIOMYELITIS continues to give much concern to the health officers of the country. Since the big epidemic in Los Angeles in 1934, it has advanced east and up the Atlantic seaboard. Accounts of the epidemic in Los Angeles attracted much attention at our Annual Meeting in Pasadena in 1934. At our Annual Meeting in Milwaukee in 1935, there was much discussion of the vaccines proposed to control the disease; and before the Southern Branch of our Association in St. Louis, the same year, there was presented a most valuable symposium on the disease in North Carolina, Virginia, Kentucky, and Tennessee, as well as reports on the use of the vaccines of Brodie and Park, and Kolmer. During the year 1935, considerably more than 10,000 cases were reported in this country, the incidence varying from 258 per 100,000 in Rhode Island, to 1 in Idaho, and 2 in Georgia, Oklahoma, and Wyoming. The year 1936 has been marked by quite extensive outbreaks in several of our southern states, Alabama leading in the number of cases.

The menace has been such as to lead the Essex County Health Officers Association of New Jersey to form a poliomyelitis committee, which has sent a questionnaire to a group of cities throughout the United States. Twenty-six answers were received from the health officers of the largest cities. As might have been expected, the answers varied widely. Some health officers said frankly that so little was known about the disease that they were reluctant to commit themselves. The replies have hardly furnished a basis for constructive regula-

tions, but are useful in indicating the differences of opinion among those officials charged with preventing and controlling epidemic diseases.

As to the methods of spread in poliomyelitis, there was practical unanimity that the path of infection was through the upper nasal and pharyngeal surfaces, and that the virus reached the individual by contact, usually through sneezing, coughing, kissing, and droplet infection. A small minority were inclined to look with suspicion upon dishes, some foods, and articles of general use.

In discussing the autumnal prevalence of the disease, there was difference of opinion, some health officers pointing out that in their sections the autumn was not the season of greatest prevalence. It may be noted here that, in Alabama particularly, the disease has been prevalent in June and July of this year, and this was true for North Carolina and Virginia in 1935. However, the opinion was general that the collection of adults and children at resorts during summer vacations furnished the environments in which contagion was most favored, and that the outbreaks were likely to occur when these people returned to their homes and schools. It does not appear that the facts fit the theories entirely.

Several health officers laid stress on individual susceptibility, and increased susceptibility brought about by fatigue, diet, constitutional factors, climatic conditions, cellular immunity, etc., while one health officer, who has had a large experience, considered dosage of the virus of importance, holding that a transitory exposure was not dangerous, and that " continued exposure was almost always necessary to cause infection."

The health officers were far from being at one concerning regulatory requirements. A decided majority opinion opposed the closing of schools except for the grades for children under 7 years of age. Postponement of the opening of schools in the presence of an epidemic was widely favored. There was considerable division as to the legal closing of movies, theatres, fairs, swimming pools, etc.

The hospitalization of all cases was generally favored, not only on account of giving the patient a better chance for recovery, but also for avoiding alarm.

The general use of throat and nose sprays containing materials which have been suggested, such as sodium alum, tannic acid, and picric acid, was not generally approved of, though some officers advocated studies under proper control.

The Essex County committee drew up a set of regulations embodying what they believe to be the best practice in view of experience and present knowledge. Hospitalization of all cases is advised. Immediate report by physicians to the local health department of all cases of paralysis, as well as those showing fever, headache, vomiting, and stiffness of the neck is urged. Services of a diagnostician should be available when possible. The opening of schools should be postponed during an epidemic. Playgrounds should be closed or else used for separate classes during recess periods, with no mixing of grades. Swimming pools should be kept open but regularly chlorinated during epidemics. Contacts under 16 should be put under observation for at least 14 days. The public should be advised against allowing children under 12 years of age to attend circuses, fairs, picnics, and movies.

While this questionnaire and the replies received show our lack of exact knowledge in regard to a number of essential facts, it is useful in calling attention to the divergence of opinion and practices now in effect. New Jersey will doubtless benefit by having more uniform methods of observation and control.

PUBLIC HEALTH EDUCATION*

National, state, and local agencies . . . public and private . . . commercial groups . . . publishers . . . all who issue health education material . . . are invited to read *Your Part at New Orleans.*

Your Part at New Orleans—The part of national, state, and local health agencies, commercial groups, publishers, and all others doing health education, or supplying health education materials is vital to the full success of Health Education Headquarters at New Orleans.

According to present plans there will be displayed a generous array of helps in the technical side of health education, both in the schools and in the communities.

Then there will be shown various classified collections of printed and other materials used or made available for use by health agencies.

Your part is to make possible extensive additions to the collection of classified materials.

National and state agencies, commercial agencies, etc., *which issue material for others to use* are invited to make up specimen sets, with prices and other detailed information, prepared in portfolio form. *All such portfolios should be forwarded, prepaid, direct to New Orleans.* Please write to the chairman for information as to when and where to ship or to deliver packages.

Those who have exhibits, posters, lantern slides, etc., for sale or loan, should send them direct to New Orleans, *but should write for information as to when and where.*

Graphic displays from all sources will be welcome *if advance information is requested as to when and where to ship or to deliver.*

In addition to the above, local and general agencies are requested to send specimen copies of health education materials (clipped, printed, mimeographed, or otherwise duplicated) *to the chairman in New York.* Such specimens will be assembled in classified portfolios: newspaper articles, photographs, radio talks, bulletins or house organs, exhibits, plays, announcements or catalogues, etc., etc. Please send the above as early as possible.

For information as to when and where to ship please write to the chairman, Evart G. Routzahn, 130 East 22d St., New York, N. Y. Send to the same address the specimens of materials for the classified portfolios.

Individual and Group Conferences at New Orleans—According to present plans, special attention will be given at Health Education Headquarters to conferences with individuals and groups interested in any phase of health education.

Please list your problems and your questions and submit them early in the week.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

Likewise kindly come prepared to report on your experiences, your successes, and your failures, if any.

Free Distribution at New Orleans—Space will be provided for free distribution of copies of health education materials, and lists or catalogues of helps and materials issued by non-commercial agencies.

Please write to the chairman in advance for instructions as to shipment or delivery.

Sorry! Our Mistake!—Dr. A. S. Baker, Health Education Adviser, Seattle, reminds us that he is with the *State* Department of Health, not the City Health Department, as stated on pages 737 and 739, July, 1936. Why anyone should have misread the letterhead is inexplicable. Just one of those things!

So Many Had Something to Contribute—That so many health workers have had illustrative experiences is the most striking feature of the symposium on venereal disease publicity.

When we began publication of these reports there seemed to be a widespread belief that both press and radio were closed channels to any wording more frank than "social diseases." Yet the reports as published show fairly general willingness to avoid hypocrisy. But so few health workers had reported the progressive steps taken that such action by a newspaper or station was accepted as being exceptional.

So many have something to contribute on numerous health situations. Widespread alertness among public health workers in reporting what they do and what others do would further the progress of public health activities. Here we have given space to the venereal disease reports partly to illustrate and emphasize the helpfulness of experience shared with other health workers.

As to venereal disease, *Editor and Publisher*, chief journal of the newspaper world, is sympathetic. Give them something to write about by sending marked copies of your local newspapers. Address: Times Building, New York, N. Y.

Why Not Try for Radio "Spots"?—Business seems to be making much of the "spot" or "station-break" announcement, the 30 to 60 second interval between network programs. Some health agencies, and more of varied social agencies, have already discovered the possibilities of these bits of radio time, or possibly, chinks in radio time. The watch company has long illustrated one use of this time. Some of the chest campaigns have made good use of a station announcer for "spot" statements.

The bigger audiences are "on the line," the copy is not so difficult to write, an idea may be pushed a number of times in the course of a few days. But of course alert advertisers are likely to buy the best of the periods.

If you want more on the subject see "Breaks for the Radio Advertiser" in *Advertising and Selling*, 9 East 38th St., New York, N. Y. July 16, 1936. *15 cents.*

Art in Health Teaching—The April-May, 1936, issue of *Baltimore Health News* (Health Department of Baltimore, Md.) was a smallpox issue. Articles and editorials included one on "The Reactions Which Follow Smallpox Vaccination." This was illustrated by a 3 page offset lithographic color plate to

> . . . represent a careful selection of the standard types of reactions which follow smallpox vaccination. They were painted from life by Leon Schlossberg, pupil of Max Brödel, in the Department of Art as Applied to Medicine, in the Johns Hopkins Medical School.

This material has been sent to deans of medical schools in the United States, Canada, and England. Copies of this issue of *Health News* are supplied at *25 cents*, a charge made necessary by the cost of the color plate.

Health Education in a City Health Department—We have all too little in print on what a health department should or could actually do in health education and how to go about it. A 5 page contribution on this subject is "The Educational Work of a Health Department," by Savel Zimand, who says:

> While health problems vary with the locality and therefore the educational program must inevitably differ with the community and the individual districts in that community, there are certain basic essentials which will be found in the health department educational program of almost any locality. A comprehensive health department program of education would cover at least two phases: (1) popular health education; and (2) health education for professional groups. Fundamental though school health education is, it is not included here, since in the majority of localities including New York City, this phase is usually regarded as the function of the school authorities, although the official and voluntary health agencies can be of assistance in various ways.
>
> One important function of popular health education is to give the community a general knowledge and understanding of the work of the official health organization. Few people now realize in full the important rôle played by a health department in maintaining the welfare of a city, or the various services it renders which have a direct influence on their own and their family's life. The public should know how a health department functions; its responsibilities; the services it maintains; when and how they may call upon it for help; what constitutes a violation of health ordinances; and to whom such violations should be reported. . . .
>
> Aside from familiarizing the public with the work of the health department, the objectives of a well rounded program of popular education might be summarized as follows: (1) educating the public concerning health conservation, disease communication, and methods of safeguarding health; (2) securing desirable changes in public opinion; and (3) educating the community to utilize the services of a private physician, or if financially unable to pay for such services, to use those of the community's clinics or hospitals.

Mr. Zimand discusses the selection of subjects, and the possibilities in "personal instruction," and "mass education."

Whatever the methods or the subject matter there are

> . . . certain fundamental conditions without which they cannot accomplish their purpose. These are *scientific accuracy, emotional appeal, concreteness and simplicity*. In addition, the program must be adapted to a specific audience and presented at an opportune or psychological time. Certain problems are city-wide and others are more local in character.

Written by a big city man yet the ideas pretty generally may have a wide application. In *Public Health Nursing*, 50 W. 50th St., New York, N. Y. July, 1936. *35 cents*. For a reprint write to the author, Department of Health, 125 Worth St., New York, N. Y.

"Warranted Publicity"—Headed by these words the Elizabethton, Tenn., *Star* (July 16, 1936) editorialized as follows:

> A neighboring newspaper, which might represent the policy of the majority of newspapers of the nation, falls over backward in a recent editorial in an attempt to avoid using the word "syphilis," despite the fact that the editorial meant absolutely nothing with the word omitted and only conveyed the meaning that the writer of the article knew something which the reader should know but he just couldn't dare to tell it.
>
> The writer winds-up his meaningless hodgepodge of words by stating that "public sentiment may soon demand frank discussion of this subject in the newspapers and public forums." Where has the writer been? Does he know that all New York papers have adopted the policy of writing about the symptoms, causes, and ravages of syphilis and other venereal diseases as they would scarlet fever—only with more emphasis in an attempt to overcome the "ttch, ttch" attitude which has been shown in the past whenever it is mentioned? Does he read the current periodicals which are more and more coming

to realize the dangers that lurk in a secretive attitude toward the diseases and are working to combat the general lack of knowledge about them?

The "shush-shush" attitude is discussed in two paragraphs. Then the editor emphasizes that the *Star*

. . . has made it a practice for some time to carry information concerning this disease. In this issue is one of a series of articles on venereal disease, published through the Carter County Health Department and Carter County Medical Association.

The *Star* did not adopt this policy to create any sensationalism, the manner in which the articles were carried could not possibly warrant this accusation. . . .

Surely the accusation could not be made that a newspaper, the most widely read medium of information in existence, is not the proper thing in which to carry such articles while trial testimony from love balm suits, giving complete details of an intemperate bedroom scene, is run under big heads and played on the front pages of the papers. . . .

Accompanying the clipping Dr. Franklin M. Foote, Carter County Health Department, says:

So that you will know that we hill billies have a wide awake press, I am enclosing an editorial from the *Star*. As you can see, this followed a brief editorial in a Johnson City paper mentioning a dread disease the health department was treating there, without even mentioning the euphemism "social disease." The accompanying editorial was written without the knowledge of anyone connected with health work purely on the local editor's initiative. Incidentally, I may add that this paper prints all our releases on syphilis and gonorrhea as readily as those on typhoid fever or poliomyelitis or whatnot. This is the third editorial that has appeared within 6 months in this paper concerning the diseases in question. When I presented a baby with gonorrheal ophthalmitis before the county court, the local appropriating body, the story was carried on the front page with "Venereal Disease" in the head.

NEW

The Child—Monthly News Summary, U. S. Children's Bureau, Washington, D. C. A 28 page planographed monthly news summary: the social security program for children; maternal, infant, and child health; child labor; socially handicapped children; international and foreign notes. A helpful device is the sub-title, "Book and Periodical Notes," under most of the main headings. *Free.*

Health Education in July, 1936, Journal—Having more or less to do with health education are the references noted below.

The quotation about Charles Kingsley (page 671) may be usable on occasion.

"Effect of Relief Programs on Public Health Nursing in the State, by MacDougall (pages 672–676), discusses preparation of the nurses, and certain community relationships.

"The Sanitary Code" (page 676): early history of English public health organization.

A plea for accurate use of the word "cure" (page 724).

Especially interesting and significant is the announcement, "Office of Public Health Education Established" (page 732), in the U. S. Public Health Service.

See "The Art of Leadership" (page 743) in "Books and Reports."

Hygeia, August, 1936—Titles and topics for various uses are suggested by the contents of *Hygeia*, 535 N. Dearborn St., Chicago, Ill. A copy *free* to teacher or health worker.

The other side of motor casualties (not due to the driver). . . . The care of infantile paralysis. . . . The "compatible eating" fad. . . . Health and the circus (the hospital car and medical services). . . . Home canning for the diabetic. . . . Safety in industry. . . . The Martin family vacation; eagle scout; little sister; garbage; camp fires; let's eat, but where? . . . Ignaz Philip Semmelwers (Hungarian). . . . Impending mosquito massacres (wholesale methods). . . . Mental attitudes vs. health. . . . And the deaf shall speak (lip reading). . . . Evolution of the microscope (picture page). . . . Germs and their enemies.

. . . The germs we live with (staphylococci). . . . "Athlete's foot" in pools and on beaches. . . . Marcus Whitman: pioneer physician. . . . New books on health. . . . Questions and answers.

In "School and Health":

Am I helping my pupils to overcome their fears? . . . Teachers for convalescent children. . . . The play life of the teacher. . . . Living health in an open window room.

MAGAZINE ARTICLES

"Four Highway Perils: Speed, Liquor, Sleep, and Morons." This title of an editorial points the way to safety. *Christian Century*, Chicago, Ill. March 25, 1936.

"How Do You Stand?" by B. M. Rowe. *Farmer's Wife*, St. Paul, Minn. April, 1936. A posture article.

"It's the Little Things That Count," by L. Clendening. *Saturday Evening Post*. March 7, 1936. Colds, bad breath, acne, athlete's foot, etc., etc.

"The Case of John A. Kingsbury," by James Rorty. "First of a series on medical politics." *Nation*, 20 Vesey St., New York, N. Y. June 24, 1936. "The Attack on Group Medicine" (including what the A.M.A. "knew about the Borden boycott"). July 4, 1936. "Whose Medicine?" (the layman's concern in the A.M.A.; the profitable Journal of the A.M.A.; the prescribing of "ethical" proprietaries; excellent work of Council on Pharmacy and Chemistry. July 11, 1936. *15 cents* each issue.

"Reducing for Epicures," by L. Clendening. *Saturday Evening Post*. July 18, 1936.

"Safety-Conscious Britain," by H. Callender (what is being done); "White Sticks Save Lives" (how white walking sticks protect the blind); magazine references on safe driving. *Rotarian*, 35 East Wacker Drive, Chicago, Ill. Aug., 1936. *15 cents*.

"West Virginia's 'Black Hole of Calcutta.'" *Social Service Review*, University of Chicago Press, Ellis Ave., Chicago, Ill. May, 1936. *$1.25*. Emphasis on responsibility of West Virginia and of tunnel company for deaths by silicosis.

RADIO

A "Station List" is supplied free by Radio Institute of the Audible Arts, 420 Lexington Ave., New York, N. Y. Lists stations of major networks, giving city, network, and frequency. Will aid in locating health talks given outside your city.

An Early Diagnosis Campaign broadcasting program in April was conducted by New York Tuberculosis and Health Assn. in coöperation with National Tuberculosis Assn. and New York Academy of Medicine. There were 30 talks over 11 stations with 8 talks on networks of Columbia, National, Mutual or Knickerbocker systems.

American Medical Assn. (N.B.C. Red network and Pacific network):

Little tips on home hygiene . . . Heart disease . . . Crippled children . . . Cancer . . . Hard of hearing . . . Eyesight saving . . . Hay fever and asthma . . . Let your doctor decide . . . Middle age . . . Summer camps.

Baltimore Health Dept. and Medical and Chirurgical Faculty of Maryland:

Care of baby during the winter . . . Meningitis on the increase . . . Another public health enemy: lobar pneumonia . . . Baby's bath . . . Banish ancient food fallacies . . . Rats: our million dollar luxury . . . This is Negro health week . . . Summertime and typhoid fever.

Connecticut State Dept. of Health (WTIC):

Standards for clean milk . . . The child is father to the man (mental hygiene) . . . In the wake of the venereal diseases . . . Dying 200 different ways . . . Modernization of water supplies . . . Public health nurse a good investment . . . How about breakfast? . . . Your cook: friend or foe . . . Cost of venereal disease . . . Value of records . . . Public and private nuisances.

Illinois State Dept. of Public Health (WHFC or WGN):

Is this the most interesting subject to Americans? (stomach) . . . Public enemies (syphilis) . . . Can we be cancer wise and cancer sensible? . . . Speaking of kidney disease . . . The great American deterrent (failure of prisons) . . . Morons, medicine, and mental hygiene . . . The new commanding general and the health army (Dr. Parran) . . . Public health and public enemies . . . Control of crime . . . Pure cosmetics and the skin game . . . Food, mothers, and the law.

Jefferson County Board of Health (Birmingham, Ala.) (WAPI):

School children and communicable diseases . . . "That bad cold" . . . The process of growing old . . . The greatest world war of all time (germs) . . . Influenza . . . Good manners and the public health.

Minnesota State Medical Assn. (WCCO):

Hay fever . . . Rheumatic fever . . . Narcolepsy . . . Sore mouth.

New York City Dept. of Health:

Posture and people . . . In the headlines (cancer) . . . Health on review . . . Your child a movie actor? (improving the child's face) . . . Anemia . . . "I can't understand what's come over her" (an interview) . . . Your city's health . . . Milk and the seven ages of man . . . They bring health to the people (public health nurses) . . . Emancipation from disease . . . High blood pressure . . . Sense, safety, and reducing (a series) . . . Common sense and mental hygiene . . . The ads in heaven.

Ohio State Dept. of Health (WOSU):

Tuberculosis sanatorium education . . . Trichinosis . . . Crippled child . . . Explanation of the tuberculin test . . . The winter's carbon-monoxide record . . . Importance of dental care . . . Seasonal hazards of typhoid fever . . . Stream polution abatement . . . Summer problems in milk sanitation.

IT HAS BEEN DONE

A fact made graphic:

The National Organization for Public Health Nursing staff, in visiting 44 states, has traveled 4.7 times around the world.

The 6th annual health poster contest for high school art students in New York has just ended. The contest is distinctive in (1) the coöperation of education and health authorities; (2) the active participation of the outdoor advertising industry; (3) the nature of the awards; (4) and the actual billboard production of the prize winning poster, usually. For the contest folder write to Committee on Tuberculosis and Public Health, S.C.A.A., 105 E. 22d St., New York, N. Y.

FOR USE OR REFERENCE

For background, to pass on to selected people, to reproduce, to adapt—here are a variety of items to select from.

Many publications formerly issued by the American Child Health Assn. are now supplied by either the American Public Health Assn., 50 W. 50th St., New York, N. Y., or National Education Assn., 1201 16th St., N.W., Washington, D. C.

A series of mimeographed pamphlets has been prepared by New York Diabetes Assn., a subsidiary of New York Tuberculosis and Health Assn., 386 4th Ave., New York, N. Y. Each is mimeographed on letter size sheets, with a stiff, colored cover. The cover page is lettered with the stencil device provided for use with the mimeograph. With a back cover sheet, and three staples on the left, the series is given physical weight and permanence for continued office use. The titles:

Survey of Diabetes Clinics in New York City

Diabetics Under Treatment in New York City

Incidence of Diabetes in Certain Educational and Industrial Groups

Directory of Diabetes or Metabolism Clinics in New York City

The New York Diabetes Association

If you have any building or institution with a bit of planting space for

trees or shrubs see "Getting Material to Beautify the Plant," by C. K. Calvert. *Municipal Sanitation,* 24 W. 40th St., New York, N. Y. April, 1936. *15 cents.* An appeal for planting; what to plant, and how.

"Advancing the Health and Welfare of the Nation's Children Through Federal and State Coöperation," by K. F. Lenroot. Reprint. U. S. Children's Bureau, Washington, D. C.

"Delinquent Patients in Venereal Disease Clinics," by Reinhard and Fales. Reprint. Health Dept., Baltimore, Md.

"Foods and Cooking," etc. List of government publications for sale. Supt. of Documents, Washington, D. C. *Free.*

"General Anesthesia: Historical High Lights," by J. T. Gwathmey. Reprint. American Medical Assn., 535 N. Dearborn St., Chicago, Ill. *5 cents.*

"A Manual of Information for Physicians on the Treatment of Syphilis and the Control of Venereal Disease," by Stokes, Parran, and others. Reprint. American Medical Assn., 535 N. Dearborn St., Chicago, Ill. 48 pages. *10 cents.*

"Medicine and Men," by F. E. Sondern, M.D. 8 page reprint on medical economics. Public Relations Bureau, Medical Society of State of New York, 2 E. 103 St., New York, N. Y. *Free.*

"The Menace of Trench Mouth," by J. A. Tobey. Reprint from *Good Housekeeping. Free* from the author, 350 Madison Ave., New York, N. Y.

"The Pasteurs, Kochs and Listers of Today" is a series of brief biographies with drawings of "living health heroes": Dr. Mary Rose, Dr. Sherman, Dr. Crile, Dr. Park, and others. Health News Service, 22 E. 40th St., New York, N. Y. Prepared for newspaper publications, the material should be useful in health agency house organs, employees' house organs, foreign language papers (which include some English), etc. Mats are available for the articles, and for the headings and drawings.

"Pneumonia." Definition; method of spread; prevention; care of a patient; serum treatment. 4 page folded; uncrowded pages. New York State Dept. of Health, Albany.

"The Problem of Fireworks Accidents." Various authors. National Society for Prevention of Blindness, 50 W. 50th St., New York, N. Y. 30 pp. *15 cents.* Accompanied by chart reporting details of accidents, state by state.

"Protecting the Dionnes" is a 24 page advertising pamphlet, with some 24 pictures of the famous babies, with text. Lehn and Fink Products Corporation, Bloomfield, N. J.

"Public Health Service Publications." List of issues July–Dec., 1935. *Public Health Reports,* Supt. of Documents, Washington, D. C. April 17, 1936. *5 cents.* Most of the technical pamphlets listed are supplied *free.*

"Silicosis: An Interpretive Review of Accumulated Experience," by Dr. C. O. Sappington. Revised in 1934 it is again timely. Address the author, 330 S. Wells St., Chicago, Ill.

"Sissy," by Florence M. Bauer. A play. Reprint from *Hygeia.* American Medical Assn., 535 N. Dearbrn St., Chicago, Ill. *10 cents.*

"Wage Your Fly War Coöperatively," by R. W. Harvey. *Eastern States Cooperator,* 95 Elm St., West Springfield, Mass. June, 1936. *Free.* Information to pass on, especially in rural work.

"What Every Teacher Should Know About the Physical Condition of Her Pupils" (30 pp.); "Training of Elementary Teachers for School Health Work" (27 pp.). Both by J. F. Rogers, U. S. Office of Education. Supt. of Documents, Washington, D. C. Each *5 cents.*

BOOKS AND REPORTS

Public Health Nursing—*By Mary Sewall Gardner, R.N. (3d ed.) New York: Macmillan,* 1936. 476 pp. Price, $3.00.

Miss Gardner's book, *Public Health Nursing,* has ever since its first edition in 1916 been the only text of its kind in the field. This new edition, the third, lives up to the high standards set by its predecessors and will prove of value to all who are interested in the public health nursing movement. No nurse can read the first few chapters, which deal with the historical development of public health nursing in this country and abroad, without being thrilled at the picture she draws of similarity of purpose and principle, and of wide variation of method due to local conditions. Practice in this country is then discussed in detail, emphasizing always the underlying principles, and considering those problems which arise in relation to the nurse herself—her selection and preparation, her relations to families, other health and social workers, and to the supporting public. What does public health nursing have to offer? What does it demand of the staff nurse, the supervisor, the administrator? Here Miss Gardner's years of professional experience and her personal wisdom stand her in good stead, and she writes with an understanding and insight that make these chapters well worth the reading.

The latter part of the book is devoted to the larger problems of organization and administration, support under private and public auspices, the value of lay boards, and use of volunteers. Those special services in which the public health nurse plays an important part are discussed in some detail—the maternity and child health program, school and industrial nursing, the control of communicable diseases, mental hygiene, and the contribution of the public health nurse to this movement.

With the rapid expansion of public health nursing today, especially in the rural areas, there is need on the part of all for clear thinking and an appreciation of basic principles if growth is to be sound. Miss Gardner's book makes us mindful of the fine achievements of the past, and points the way to sound developments for the future. It is worthy of careful study by all who would practise the "art" of public health nursing.

KATHARINE FAVILLE

Vitality: A Book on Health for Women and Children—*By Elizabeth Sloan Chesser, M.D. New York: Oxford University Press,* 1935. 254 pp. Price, $2.50.

A good many medical authors in writing books for the general public seem to have considerable difficulty in working out a consistent plan. Usually the error committed is one of including too much medical detail. This is true of the book under review. Much of Section 2 comprising the last 145 pages and dealing with sick nursing in the home could have been omitted with advantage. After all, it is the attending physician who is responsible for the care of the ill and it does not help much to have someone else tell the nurse, whether through the pages of a book or otherwise, that the family physician will probably do this or will probably order that. On the other hand this book fails to grasp a real opportunity to emphasize again and

again the importance of such preventive measures as immunization.

The first section of the book dealing with ways of keeping healthy is better. Even here, though, the statements are often exaggerated or inaccurate; as, for example, "When we are healthy and fit we do not succumb to the microbes of disease, even when we breathe or swallow them." The chapters on Health and Education; The Healthy Child; and Youth and Health are pretty good, although a touch of Polyanna spoils some of the advice on mental hygiene. After all, seeing and facing things as they are without self-hypnosis is not so bad a rule to follow whereas "Thinking the Right Thoughts"—with capital letters, of course—may not infrequently degenerate into piffle.

On the whole, the reviewer thinks that there are more useful books than this available to the public.

MERRILL E. CHAMPION

Hospital Accounting and Statistics: A Manual for American Hospitals—*By Michael M. Davis et al. Chicago, Ill.: American Hospital Association,* 1935. 85 pp. Price, $1.00.

Accurate and relatively complete data regarding the costs of medical care are, perhaps, more urgently needed by those truly interested in the broader aspects of medical service than any other single type of data. And, although estimates of the cost of hospital care are probably more reliable than estimates of other varieties of medical service, there is still opportunity for tremendous improvement. Especially is it true that there is much to be desired in the unification of hospital statistical reports.

The present book contains an outline of standard procedures for the handling of hospital expense and income accounts. The primary aim of the book is to present methods of classification that can be used by hospitals throughout the country. Clear-cut definitions and sufficient details are given to permit the adoption of the plan in all hospitals whether large or small, public or private. The next step, which is undoubtedly more difficult, involves the development of a plan for insuring its general adoption. The American Hospital Association and its Council on Community Relations and Administrative Practice are to be congratulated for the completion of the initial step in this pioneer work.

CARROLL E. PALMER

Swimming Pool Data & Reference Annual—Volume IV—*Earl K. Collins, Editor. New York: Hoffman, Harris, Inc.,* 1936. Price, $2.00.

The 1936 *Swimming Pool Data and Reference Annual,* which is the fourth volume of this book, brings together in a comprehensive reference manual selected articles written by some outstanding authorities in the swimming pool field. The book is instructive and well worth reading by all interested in swimming pools in any way, but is of special interest to architects and engineers; to contractors; to swimming pool owners and operators; to swimming instructors; and to public health officials.

The 1935 Report in full by the Joint Bathing Place Committee of the State Sanitary Engineers and the American Public Health Association is included. This report should be in the library of all public health officials interested in the supervision of swimming pools. A very timely article on wading pools by Dr. W. J. McCormick stresses the point that if a wading pool is deep enough to allow swimming by the children it should be designed as a swimming pool, but that if a pool is to be used as a wading pool, and is so designed, the use of the pool should be rigidly restricted to wading only. The tendency in some cities is to build swimming pools for

children, but call them wading pools. Dr. McCormick also shows that there is practically no supervision of wading pools throughout the United States.

The answers to an interesting questionnaire have been compiled by Editor Earl K. Collins on charges, fees, practices of swimming pools on a national basis, after a nation-wide survey of swimming pools.

There is a special worth while article to the public health officials and to the operators of swimming pools written by C. A. Holmquist and Charles R. Cox of the New York State Health Department on the "Guidance in the Design and Operation of Municipal Pools." This article should be read by all those responsible for the development of park systems in municipalities.

Special types of the most modern pools are described. The construction of water-tight pools is also outlined in a separate article. Among the helpful practical discussions is one on the swimming pool operators' problems which outlines the results of a nation-wide survey. E. S. Bishop discusses water temperature control for shallow baths and pools. A mechanical engineer compares the cost of purchased versus privately pumped water and also the piping hook-up for utilizing steam in a pool. The manager of a hotel pool outlines some important points in the cleaning of pools with the suction cleaners. A representative of the tile manufacturers association discusses tile and tile work for swimming pools.

A large number of commercial companies advertise equipment and supplies for swimming pools covering pretty well the entire field.

Anyone interested in swimming pools, whether designing, constructing, or operating a pool, supervising the operation of swimming pools from the public health viewpoint, or interested in swimming and in physical education progress, will find it well worth while to have a copy of this reference in his library. ALFRED H. FLETCHER

Sports for Recreation and How to Play Them—*The Staff of the Intramural Sports Department, University of Michigan, Elmer D. Mitchell, Editor. New York: Barnes,* 1936. 467 pp. Price, $2.50.

This text covers 28 sports, ranging from archery and horseshoe pitching to ice hockey and touch football, including such typical sports as boxing and wrestling, swimming, rowing, fencing, and soccer.

Designed "to extend and develop the increasing interest in healthful recreations, to assemble in convenient form needed information on the various forms of physical recreation . . . and to treat each sport from the standpoint of the beginner or average player . . ." it meets a real need.

Considerably more than half the content is devoted to individualistic competitions, such as tennis, golf, swimming, fencing, winter sports, and the like, which have a distinct value as recreation in years after college, when playing team games is less attractive and not safe. This is in accord with the modern trend in physical education which aims at training for a lifetime, rather than for the exhibitionism of football, basketball, and other team games. CHARLES H. KEENE

Current Problems in Camp Leadership—*Edited by J. R. Sharman, Marjorie Hillas, and D. K. Brace. Ann Arbor: Ann Arbor Press,* 1934. 120 pp. Price, $1.25.

This workbook for camp counselors and directors is the product of an editorial board, the members of which are engaged in physical education, camp work, or recreation activities in various parts of the country. Stimulation of the camping movement created a demand for leaders in camps. At the

time of printing, over thirty institutions were conducting courses for the professional preparation of camp counselors and directors. The volume was designed to meet the need for organized materials suitable for use in such college courses, coupled with a need for materials for use in the pre-camp training periods conducted by camps for the preparation of counselors. The preface states: "The ideal camp director or counselor should be a person of superior personality with a broad education and several years of successful experience in camping."

The contents are divided into 34 units, each prepared by contributors especially selected because of experience in the field discussed. These units deal with: duties of personnel, camp organization, camp objectives and government, health education, personal health problems, mental hygiene, first aid, education, sports and other activities, art, handicraft, music, sanitation, methods of appraising results and of measuring the effects of camp life. Each unit consists of introductory paragraphs leading up to a series of exercises and problems for the student, followed by useful references.

To quote from the unit on health education:

> Living in the out-of-doors under proper conditions is generally considered healthful, yet boys and girls have returned from camp tired, restless, and weighing less than when they went to camp. In recent studies, it has been attempted to determine the extent to which camp life contributes to healthful development of the campers. Implications from these studies are that the camp contributes to healthful development only in the proportion to which it is organized and administered according to progressive health practices. An effective and efficient health program should include (1) health supervisory activities, (2) health service activities, and (3) health instruction activities.

And later under personal health problems:

> Although the health of the camper is the chief concern of the camp physician, the nurse, and the dietitian, nevertheless the general staff, including the director and all counselors, has no small part to play in the health program.

In the next edition, the importance of additional public health safeguards, such as pasteurized milk, might be stressed, but in general this book represents a useful contribution of much value to those concerned with the camping problem, including public health officials. IRA V. HISCOCK

California Medical Association Cancer Commission Committee Studies—*San Francisco: J. W. Stacey, Inc.*, 1936. Paper, 129 pp.

One of the greatest obstacles to the cure of cancer is the fact that its early diagnosis and proper treatment lie often beyond the ability of the physicians who first see the cases. Another is the fact that suspicious cases are not more often referred, during the period when they are curable, to physicians who have the knowledge and skill to handle them in accordance with advanced practice. Cancer is a condition which generally calls for very special attention, and the average practitioner of medicine or surgery is not necessarily possessed of the training and experience in this particular direction to qualify as an expert.

The publication under review is an attempt to reduce the gap between the best knowledge and the common knowledge of cancer in its various forms and locations. It is chiefly the work of a permanent committee, or so-called Cancer Commission, appointed by the California Medical Association in 1931, and of a number of committees appointed by that commission. During the last 5 years a series of articles by these committees have been published by the Cancer Commission in *California and Western Medicine*, and these have now been brought together and published in the little volume before us. The

publication is for medical men entirely.

There are sections on tumors in various parts of the body and one on the subject of radiology. Each section is signed by a dozen or more physicians who are immediately responsible for it; the one on radiology has thirty-eight individual sponsors. This gives to the pronouncements an appearance of authority and disarms any criticism that anybody is advertising—two considerations to which physicians who do considerable work with cancer patients feel compelled to give much attention.

The book is compact, and well divided and sub-divided for rapid reference, but its very small type and poor paper, together with its paper cover and pocket size, make it less comfortable to read and less likely to be found when wanted than could be desired. Its newness gives it a special value. Thought and practice have been advancing considerably in the diagnosis and treatment of cancer and every physician and surgeon should strive to keep abreast of this progress, at least in his reading. GEORGE A. SOPER

A Survey of Public Health Activities in Honolulu, Hawaii—Including Official and Voluntary Agencies—*By Ira V. Hiscock, C.P.H. Chamber of Commerce of Honolulu,* 1936. 149 pp.

This book should be read by all engaged in public health administration if for no other reason than to give them a cause to ponder over the shortcomings of health work in the continental United States. The tremendous possibilities for good in the loyal and intelligent support of official health administration by civic organizations is evidenced from beginning to end in this report.

Public health administration in the Island territory was surveyed in 1928, and the far reaching recommendations of that report were carried out to a surprising degree during the years intervening between it and the survey reported upon (conducted, be it noted, by this Chamber of Commerce). Though known as "the paradise of the Pacific," the Islands suffer the imperfections of this mundane sphere, so further improvements in public health administration naturally were discovered.

The recommendations are so eminently practical, and the need for betterment in public health administration so pressing that one feels sure that a subsequent survey will find them as nearly completely met as were those of the first. That the Island territory will have an administrative organization of unusual efficiency is safe to prophesy when one considers the agencies and people behind the movement. The author says in his introduction: "To have the opportunity to return to Honolulu was a special pleasure." A reading of the report leaves no doubt of the sincerity of that comment.

RAYMOND S. PATTERSON

Manson's Tropical Diseases—*Edited by Philip H. Manson-Bahr (10th ed.) Baltimore: Wood,* 1936. 1003 pp. Price, $11.00.

This treatise, which has been for so long a standard, has now reached its 10th edition. The most notable change in the new edition is the expansion of the text on the clinical side, which has necessitated cutting out some of the scientific matter concerning medical zoölogy. The editor explains this by his desire to follow the design of the author to make this manual a practical volume for those practising medicine in the tropics.

The text is clear and readable. It is illustrated by 22 color and 15 half-tone plates, 381 figures, 6 maps, and 38 charts, all of which are excellent. It is a book which belongs on the shelf of everyone who is interested in tropical diseases. MAZÝCK P. RAVENEL

The Sanitary Inspector's Handbook: A Manual for Sanitary Inspectors and Other Executive Public Health Officers—*By Henry H. Clay. (2d ed.) London: H. K. Lewis & Co., Ltd.*, 1936. 432 pp. Price, $4.75.

The work of the sanitary inspector has been developed to a higher point in England than in any other country. It has, in fact, been so far advanced that one might almost regard this calling as a profession. Like other professions, it has its specialists.

Courses of instruction are given at various approved places; and such subjects as physiology and hygiene, elementary physics and chemistry, and the technology of buildings are covered in the courses. A specified period of time must be spent in a public health department. Finally, an examination is given by the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board, those passing being given a certificate which is everywhere required by law in England and Wales for persons who are to be appointed inspectors.

The book is divided into 31 chapters and there are 95 illustrations. Among the chapters of particular interest to Americans are those which are devoted to nuisances, offensive trades, housing, lighting, water, smoke, drainage, plumbing, sewage and sewage disposal, refuse disposal, ventilation and heating, factories and workshops, dairies and slaughter-houses, protection and preservation of food, infection and disinfection, and vital statistics.

The attitude held in England as to the relation of nuisances to disease is described. The earliest laws for the abatement of nuisances were based simply on the discomfort which they produced rather than any idea of their relation to health. Later, the idea that epidemic disease was perhaps due entirely to the harmful effects of nuisances came to be generally held. Today nuisances are dealt with:

> . . . not because they, in fact, cause specific disease, but in order to afford and secure to the people fuller physical enjoyment of life: that by the removal of nuisances their surroundings may be made more pleasant, and because a healthy environment must obviously react favorably upon individual and public health.

Although the book explains much about the law of England and Wales and is not intended so much for American as for British use, there is a great deal that sanitarians will find applicable to conditions in the United States. It is today the best book of reference on the subject with which it deals.

The book is carefully written and by an authority, who is a Fellow of the Royal Sanitary Institute and Lecturer in Sanitary Engineering, London School of Hygiene and Tropical Medicine, University of London. The original edition was brought out in 1933 and replaced the well known volume on the same subject by Taylor, revised by Clarke, both of whom are now dead.

GEORGE A. SOPER

The Balanced Diet—*By Logan Clendening, M.D. New York: Appleton-Century*, 1936. 207 pp. Price, $1.50.

This little book of 207 pages presents in concise yet very readable form the fundamentals of nutrition. The author's breezy style holds one's interest from page to page and from chapter to chapter. This is a book for the layman who wishes to obtain without too much mental effort a knowledge of foods, diets, and their relation to human health. Of course in a semi-popular presentation of this sort it is necessary to make many generalities. This is the case in *The Balanced Diet*. Some of these generalizations are not fully true or proven and sometimes there are unmentioned exceptions to the stated rule. There are many quotations

from other writers to illustrate various viewpoints.

The chapter on food fads is one of the best. In this the author covers well such topics as fasting, aluminum scare, food acidity, and vegetarianism. The final chapter on The Economics of Food is so tersely dealt with that it might as well have been omitted. A set of food tables omitting minerals and vitamins is appended.

CARL R. FELLERS

Die Methoden der Wohnungshygiene—*By Karl Süpfle and Paul Hoffmann. In Abderhalden, Handbuch der biologischen Arbeitsmethoden,* Abth. IV, Teil 11, Heft 4, Leif. 431, pp. 559–770, 75 figs. in text, 1934. Price, R.M. 10.

This is a comprehensive treatise on the hygiene of the home or dwelling. It deals with the scientific methods of examination of the site; determination of air and water in the soil, its permeability, chemical constitution, bacterial content, temperature, level of ground water; building materials, with reference to their permeability by air and water, moisture capacity of mortar, deadening of sound, insulation against temperature changes and loss of heat, strength of materials, and protection against attack of wood-destroying fungi.

The problem of heating is discussed from the standpoint of determination of requirements, testing of installations, and calculation of dimensions of gas piping for stoves and heating equipment.

Ventilation requirements are computed on the basis of the production of CO_2, heat, and moisture by the occupants according to age. Air pressure is computed with reference to normal changes in temperature, and elaborate formulae are given for the measurements of the movement and rate of change in the air. Special attention is given to temperature, measurement and control of humidity and carbon dioxide content, and the the detection and measurement of the deadly carbon monoxide. Methods of testing for the amount of dust entering the home are described.

The problems of lighting are treated quantitatively from the standpoint of methods of determining the quantity and intensity, angles of dispersion, requirements in dimensions of windows, angles of panes, and optical qualities of various kinds of glass.

CHARLES A. KOFOID

BOOKS RECEIVED

AN AMERICAN DOCTOR'S ODYSSEY. By Victor Heiser, M.D. New York: Norton, 1936. 544 pp. Price, $3.50.

CASH RELIEF. By Joanna C. Colcord. New York: Russell Sage Foundation, 1936. 263 pp. Price, $1.50.

DISINFECTION AND STERILIZATION. By Ernest C. McCulloch, M.A., D.V.M., Ph.D. Philadelphia: Lea & Febiger, 1936. 525 pp., ill. with 53 engravings. Price, $5.50.

GYNECOLOGY AND OBSTETRICS. By Edwin Jameson, M.D. Vol. XVII, Clio Medica Series, edited by E. B. Krumbhaar. New York: Hoeber (Medical Book Department of Harper), 1936. 170 pp. Price, $2.00.

INTERIM REPORT TO THE NATIONAL RESOURCES COMMITTEE. By the Research Committee on Urban Problems, Clarence A. Dykstra, Chairman. Washington, July, 1936. 188 pp.

PHYSICIAN, PASTOR AND PATIENT: PROBLEMS IN PASTORAL MEDICINE. By George W. Jacoby, M.D. New York: Hoeber (Harper), 1936. 390 pp., ill. Price, $3.50.

PREVENTIVE MEDICINE (5th ed.). By Mark F. Boyd, M.D. Philadelphia: Saunders, 1936. 561 pp., ill. Price, $4.50.

THE PSYCHOLOGY OF ADOLESCENCE. By Luella Cole, Ph.D. New York: Farrar & Rinehart, 1936. 503 pp. Price, $3.50.

PUBLIC ADMINISTRATION. By John M. Pfiffner, Ph.D. New York: Ronald, 1935. 525 pp. Price, $4.00.

WATER PURIFICATION CONTROL (2d ed.). By Edward S. Hopkins. Baltimore: Williams & Wilkins, 1936. 184 pp. Price, $1.75.

YOUR HAY FEVER. By Oren C. Durham. With an Introduction by Morris Fishbein, M.D., and a Chapter on Treatment by Samuel M. Feinberg, M.D. New York: Bobbs-Merrill, 1936. 264 pp. Price, $2.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Tuberculosis Case Finding—Most tuberculous people are unaware of their infection, and the condition will not be diagnosed until the disease is far advanced. The most effective way of discovering early infections is by chest surveys of susceptible groups. If properly treated, the spread of the disease is prevented.

AMBERSON, J. B. Case Finding Methods for the Diagnosis of Tuberculosis. J.A.M.A. 107, 4:256 (July 25), 1936.

More about Tuberculosis Case Finding—Arguments are advanced for testing school children for tuberculosis and for the examination of adults in the homes of child reactors. Educational values in routine testing are emphasized.

BROWN, W. P. Economy in Tuberculosis Case Finding Through the Schools. Pub. Health Nurs. 28, 7:455 July), 1936.

Adequate Nutrition and Pregnancy—This discussion of maternity benefits and their effect upon the health of mothers and infants in Europe will make strange reading for us in this country.

BALFOUR, M. I. Nutrition as a Factor in Pregnancy and Childbirth. J. State Med. 44, 7:391 (July), 1936.

Mosquito Control on a Grand Scale—With 2,300 miles of reservoir shore line the extent of the malaria control problem in the Tennessee Valley is evident. From the extensive organization formed to attack the problem one may predict an effective program.

BISHOP, E. L. Malaria Control Activities of the Tennessee Valley Authority. Pub. Health Rep. 51, 29:970 (July 17), 1936.

Composite Ranking of Diseases and Defects—Looking beyond the ordinary mortality and morbidity tables an attempt is made to estimate the true position of the various diseases. The outstanding diseases are grouped: (1) influenza and pneumonia, tuberculosis, heart disease; (2) cancer, rheumatism, dementia precox; (3) syphilis, appendicitis, mental defect, results of childbirth. A stimulating study.

BRITTEN, R. N. Important Causes of Sickness and Death. Pub. Health Rep. 51, 29:947 (July 17), 1936.

Saving New-Born Babies—Steady declines in the neonatal and infant death rates in Chicago during the last 10 years indicate that measures found effective in hospital practice may be applied successfully to city-wide conditions. Prematurity is a great factor in infant deaths, and lack of antepartum and postnatal care influences deaths among premature babies. The infant hygiene program of the Chicago Health Department is described.

BUNDESEN, H. N., *et al.* Mortality of New-Born Infants in Chicago During 1935. J.A.M.A. 107, 4:270 (July 25), 1936.

Preventing Typhoid Fever—In general, typhoid prophylaxis is resorted to most frequently in those parts of the country with the greatest typhoid fever problem. Seasonal peaks of immunizations occur about 2 months before the peak of cases in anticipation of, rather than in the face of, epidemics.

COLLINS, S. D. History and Frequency of Typhoid Fever Immunizations and Cases in 9,000 Families. Pub. Health Rep. 51, 28:897 (July 10), 1936.

Marriage and Mental Health—Among persons admitted to mental hospitals, the rate was lowest for married people and, in order, higher for single people, widowed, and divorced. In the last group the rate was 4 times that of the married.

DAYTON, N. A. Marriage and Mental Disease. New Eng. J. Med. 215, 4:153 (July 23), 1936.

How Long Shall Unnecessary Maternal Deaths Continue?—Maternal death rates remaining high despite studies, surveys, reports, and resolutions, the demand is made that adequate prenatal services be effectively coördinated with decent lying-in and postpartum services. A definite program is outlined.

DUBLIN, L. I., and EMERSON, H. Maternal Mortality (A Symposium). New York State J. Med. 36, 13:1002 (July 1), 1936.

Fortified Milks—As prophylactics against rickets, both yeast-fed and irradiated vitamin D milk were found adequate. That higher vitamin D content was of additional value as a prophylactic was not established.

ELEY, R. C., *et al.* The Prophylactic Value of Vitamin D Irradiated and Vitamin D Yeast-Fed Milk. New Eng. J. Med. 215, 3:110 (July 16), 1936.

Unpleasant Thought-of-the-Month—Lymph nodes in 4 of 88 swine carcasses "passed for food" contained viable avian tuberculosis bacilli. The study is a reminder that virulent tubercle bacilli may be present in pork even though visible lesions of tuberculosis have been removed.

FELDMAN, W. H. The Recovery of Virulent Tubercle Bacilli from the Tissues of Swine Intended for Food. J. Infect. Dis. 59, 1:42 (July-Aug.), 1936.

Hospital Plumbing—Traced to a carrier in a hospital diet kitchen this unusual epidemic of paratyphoid fever mixed with other enteric organisms seems to have been spread largely through water contaminated with sewage.

FOLEY, A. R., and FAILLE, J. L. A Hospital Epidemic of Paratyphoid A. Canad. Pub. Health J. 27, 7:313 (July), 1936.

Viewers-with-Alarm Please Note—In Stockholm educated married couples have more children than do those in "lower" social strata.

HUTCHINSON, E. P. Education and Intramarital Fertility in Stockholm. Milbank Quart. Bull. 14, 3:285 (July), 1936.

European Experience with BCG—The vaccine is harmless and is of some value if used as an adjunct to other prophylactic measures. The author concludes that Calmette would serve the cause of immunization better had he remembered what Renan once said to an over-enthusiastic Pasteur: "Truth is a great coquette; she will not be sought with too much passion, but is often most amenable to indifference. She escapes when apparently caught, but gives herself up if patiently waited for."

KAYNE, G. G. BCG in Western Europe. Am. Rev. Tuberc. 34, 1:10 (July), 1936.

Are Colds Infectious?—Arguments are presented in defense of the postulate that the true common cold is not a communicable disease but a condition of faulty accommodation to unfavorable environment.

KERR, W. J. The Common Cold. J.A.M.A. 107, 5:323 (Aug. 1), 1936.

Treating Colds—Glib advice about taking your cold to bed, so dear to the heart of the health educator, was put to the test. Within the limitations of the study it was found that illness was shortened and complications were prevented when victims went immediately to bed as compared with those who waited 5 days before doing so.

LEBLANC, T. J., and WELBORN, M. B. The Common Cold and the Effect of Rest in Bed on Its Course. Am. J. Hyg. 24, 1:10 (July), 1936.

Dependency and Physical Defects—One-fifth of all persons over 16 on relief rôles had serious physical handicaps. Evidence is presented that physical impairment is an important cause of dependency. Disabilities were 3 times as common in families on relief as among non-relief persons.

PERROTT, G. ST. J., and GRIFFIN, H. C. An Inventory of the Serious Disabilities of the Urban Relief Population. Milbank Quart. Bull. 14, 3:213 (July), 1936.

Occupational Therapy for Convalescents—In the industrial clinic at Leysin, Switzerland, work benches and motors have been installed near the beds in tuberculosis wards, so that bed patients have available miniature factories, while in the convalescent workshops much more complete equipment is provided. Work is adapted to the physical condition of each patient, and the psychological therapeutic effect is excellent.

ROLLIER, A. The Industrial Clinic at Leysin. Internat. Nurs. Rev. 10, 2:142, 1936.

Next Steps in Public Health—This memorandum, the last paper written by Edgar Sydenstricker, intended to serve as the basis for what is one of the outstanding meetings in the whole field of public health, is in reality a document of rare importance. The discussions that follow, contributions of the leaders in public hygiene, fully meet the promise of the introductory memorandum.

SYDENSTRICKER, E., *et al.* The Next Steps in Public Health. Proceedings of the Fourteenth Annual Conference of the Milbank Memorial Fund. Mar. 26, 1936.

Can Public Opinion Affect Maternal Deaths?—Let the blame for high British maternal mortality go where it belongs, concludes this writer: to a careless public, an inefficient midwife, an inept doctor, or a badly-run health department.

TOPPING, A. Maternal Mortality and Public Opinion. Pub. Health 49, 10:342 (July), 1936.

Influencing John Public's Behavior—What the municipal health department can and should do to stimulate popular support for its projects and public interest in personal health is briefly and convincingly set forth by one who knows from his own experience. First is individual contact, then group instruction, finally, general and supplementary information and publicity.

ZIMAND, S. The Educational Work of a Health Department. Pub. Health Nurs. 28, 7:446 (July), 1936.

ASSOCIATION NEWS

AMERICAN PUBLIC HEALTH ASSOCIATION
SIXTY-FIFTH ANNUAL MEETING
NEW ORLEANS, LA.

OCTOBER 20–23, 1936

For Preliminary Program, Railroad Fares, and Hotel Rates, see Supplement in back of Journal

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Richard M. Adams, M.D., State Health Department, Oklahoma City, Okla., State Director of County Health Units

Daniel C. Barrett, M.D., C.P.H., 3318 Browning Ave., Cincinnati, O., District Physician, City Health Department

John H. Cauley, M.D., 33 Adams St., Dorchester, Mass., Medical Inspector, Boston Health Dept.

Chadwick W. Christine, M.D., Flemingsburg, Ky., Fleming County Health Officer

James S. Cull, M.D., D.P.H., Pouce Coupe, B. C., Canada, Director Peace River Health Unit

James O. Foster, M.D., Luverne, Ala., County Health Officer, Crenshaw County Medical Board

Max C. Igloe, M.D., Big Rapids, Mich., Director, Mecosta-Osceola Health Dept.

Lester C. Krotcher, M.D., Twin Falls, Idaho, Director, Twin Falls Health Unit

Leo M. Morse, M.D., C.P.H., First National Bank, Neillsville, Wis., District Health Officer, State Board of Health

Edward W. Palmer, Great Plain Ave., Needham, Mass., Acting Health Officer

Arthur O. Peters, M.D., 15 N. 4th St., Dayton, O., Commissioner of Health

Laboratory Section

Elizabeth L. Hazen, Ph.D., 440 Riverside Drive, New York, N. Y., Senior Bacteriologist, Division of Laboratories and Research, State Dept. of Health

Katherine H. Kramer, 136 Elder Ave., Lansdowne, Pa., Laboratory Technician

Meyer Samson, 1619 Spruce St., Philadelphia, Pa., Director, Samson Laboratories

Edna L. Smith, State Board of Health Laboratories, Jefferson City, Mo., Bacteriologist

Vital Statistics Section

Madge Proctor, 527 E. High, Jefferson City, Mo., Statistician, State Board of Health

Public Health Engineering Section

Herbert M. Bosch, District Health Unit No. 2, Mankato, Minn., District Public Health Engineer

Eldridge N. Brown, D.V.M., 1701 Sevier St., Nashville, Tenn., Veterinarian and Dairy Inspector

Michael E. Doyle, Box 424, Albany, Ga., District Sanitary Engineer, State Board of Health

Charles H. Field, Albany, Ga., Sanitary Engineer, Dougherty County Board of Health

Leon E. Johns, 218 S. West Fifth Ave., Ft. Lauderdale, Fla., Sanitary Officer, Broward County Health Dept.

Harold L. Malone, Coöperative Health Unit District No. 1, Tahlequah, Okla., Engineer

Edmund J. Marzec, 3231–4th Ave., Sioux City, Ia., Sanitary Engineer, Woodbury County Health Unit

Joseph J. Mooney, 707 Arbor St., Ann Arbor, Mich., Federal Trainee

Myhren C. Peterson, P. O. Box 443, Bemidji, Minn., District Public Health Engineer, State Dept. of Health

William D. Turner, Ph.D., Box 1, Havemeyer Hall, Columbia University, New York, N. Y., Assistant Professor of Chemical Engineering

Industrial Hygiene Section

Niles R. Bernz, 80 Maiden Lane, New York, N. Y., charge of Industrial Hygiene Division, Fidelity and Casualty Company of New York

John W. Dugger, M.D., Old Capitol Bldg., Jackson, Miss., Director, Division of Industrial Hygiene, State Board of Health

John M. Hepler, C.E., 320 W. Genesee St., Lansing, Mich., Director, Bureau of Industrial Hygiene, Dept. of Health (State)

Saul C. Rothmann, State Department of Health, Charleston, W. Va., Assistant Industrial Hygiene Engineer, Bureau of Industrial Hygiene

Kenneth D. Smith, M.D., 456 Elmwood Dr., Marion, O., Assistant Medical Director, Bureau of Occupational Diseases, State Dept. of Health

Emerson Venable, 414 S. Trenton Ave., Pittsburgh, Pa., Chemist, Dust Laboratory, Mine Safety Appliances Company

Food and Nutrition Section

A. J. Carlson, Ph.D., M.D., LL.D., University of Chicago, Chicago, Ill., Professor of Physiology, University of Chicago

Eugene E. Hamann, D.V.M., Rm. 205, City Hall, Lansing, Mich., Chief Sanitary and Food Inspector

Child Hygiene Section

James W. Chapman, M.D., 902 Broadway, Hannibal, Mo., Acting Director, Hannibal-Marion County Health Unit

Francis V. Corrigan, M.D., 610 Angell, Providence, R. I., Assistant Chief, Bureau of Child Hygiene, State Dept. of Health

Ruth E. Fairbank, M.D., 615 N. Wolfe St., Baltimore, Md., Psychiatrist, charge of Mental Hygiene Study, Johns Hopkins School of Hygiene and Public Health

Paul F. Fletcher, M.D., St. Louis University, School of Medicine, St. Louis, Mo., State Obstetrician

Public Health Education Section

Eva M. Adams, Health Department, Jackson, Miss., Director of Health Education

Theresa E. Boden, 195 Broadway, New York, N. Y., Assistant to Health Director, American Telephone and Telegraph Company

P. Bruce Brockway, M.D., 225 Michigan, Toledo, O., Director, Health Supervision, Board of Education

A. Barklie Coulter, M.D., 1150 Connecticut Ave., N.W., Washington, D. C., Director, Bureau of Tuberculosis, Dept. of Health

Vaikunthrai M. Desai, D.D.S., Central Bank Bldg., Esplanade Rd., Bombay, India, Director, Nair Hospital Dental Clinic

A. Louise Dietrich, R.N., 1001 E. Nevada St., El Paso, Tex., General Secretary, Texas Graduate Nurses Assn.

Margaret C. Klem, Social Security Board, Washington, D. C., Associate Social Statistician

Minnie K. Oed, R.N., 691 Seward Ave., Detroit, Mich., Nurse-Teacher, Health Education, Dept. of Health

Public Health Nursing Section

Margaret Leddy, 3312 Federal St., Camden, N. J., Supervising Nurse, Metropolitan Life Insurance Co.

Kathryn A. Schulte, R.N., 2875 W. 19 St., Chicago, Ill., Teacher, Public Health Nursing

Edith L. Soule, R.N., State Bureau of Health, Augusta, Me., Director, Division of Public Health Nursing

Epidemiology Section

Hollis S. Ingraham, M.D., State Dept. of Health, Albany, N. Y., Assistant Epidemiologist

Gerald N. Rein, M.D., 15715 Park Place N., E. Detroit, Mich., Medical Consultant, U. S. Public Health Service

Unaffiliated

Samuel E. Hershey, D.V.M., Box 283, Charleston, W. Va., Consulting State Veterinarian

Walter M. Smith, M.D., M.P.H., State Board of Health, Little Rock, Ark., Director, Training Center

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DECEASED MEMBERS

John B. Derrickson, M.D., Georgetown, Del., Elected Member 1932

Frederick McD. Harkin, M.D., Marquette, Mich., Elected Member 1935

William S. Yates, M.D., Junction City, Kans., Elected Member 1934

APPLICANTS FOR FELLOWSHIP

(Additions to list published in July Journal)

HEALTH OFFICERS SECTION

William B. Grayson, M.D., Little Rock, Ark.

Gordon L. Hastings, M.D., M.P.H., Little Rock, Ark.

Norris C. Knight, M.D., C.P.H., Clarksdale, Miss.
Ernest M. Morris, M.D., Fall River, Mass.

FOOD AND NUTRITION SECTION
Max J. Mackler, Ph.C., C.P.H., Tampa, Fla.

EPIDEMIOLOGY SECTION
Ernest L. Stebbins, M.D., C.P.H., Rochester, N. Y.

LABORATORY SECTION
George A. Denison, M.D., Birmingham, Ala.
William H. Gaub, M.S., C.P.H., Nashville, Tenn.
Katherine Marden, M.S., Hartford, Conn.

PUBLIC HEALTH EDUCATION SECTION
Adelaide Arísten, B.A., San Francisco, Calif.
Kenneth W. Grimley, M.S., Birmingham, Ala.
Nathan Sinai, M.S., D.P.H., Ann Arbor, Mich.

PHOTOGRAPH OF THE GAVEL PRESENTED TO THE WESTERN BRANCH AMERICAN PUBLIC HEALTH ASSOCIATION BY DR. H. E. YOUNG AT THE ANNUAL DINNER DURING THE SEVENTH ANNUAL MEETING IN VANCOUVER, B. C., JUNE 26, 1936

Seventh Annual Meeting
American Public Health Association (Western Branch)

Vancouver, British Columbia, Canada.
June 24th to 27th, 1936.

Presentation of Gavel.

THE OAK WOOD USED IN THE HEAD OF THE GAVEL PRESENTED TO THE WESTERN BRANCH OF THE AMERICAN PUBLIC HEALTH ASSOCIATION BY THE PRESIDENT-ELECT, DR. H. E. YOUNG, PROVINCIAL HEALTH OFFICER OF BRITISH COLUMBIA, WAS TAKEN FROM THE TIMBERS OF THE S.S. "BEAVER."

History of "Beaver"

Keel laid 1834 at yards of Green, Wigram & Green, Blackwall, England.

"Steam navigation was still in its infancy, but the committee of the Hudson's Bay Company decided to utilize the new mode of transportation for their distant western outposts in the North Pacific. They were motivated chiefly by the necessity of overcoming the difficulty of navigating the Columbia River bar, and by the need for faster and more reliable communications between the outposts than could be guaranteed by sailing-vessels.

"The maritime history of the north-west Pacific for fifty-three years is linked with the career of this sturdy pioneer steamer.

"In order to meet the manifest difficulties of crossing the oceans from the River Thames to the River Columbia, and to meet the primitive and dangerous conditions in the far west, the vessel was constructed with the greatest possible care."—*Norman Hacking: "Early Marine History of British Columbia."*

The woods used in the construction of the ship were oak, elm, teak, and greenheart.

Her engines were made by the firm of Boulton & Watt, they were 35 nominal horse-power each, two engines being used to turn the paddles. Her length was 101 feet 4 inches, while her outside width was 33 feet, her paddle-boxes measuring 6 feet 6 inches each in width. Her register was a trifle over 109 tons, she was armed with 5 nine-pounder guns, and carried a crew of twenty-six men.

Mrs. John Labouchere christened the vessel on May 2nd, 1835. On August 29th of the same year she set sail for the north-west coast of America, her machinery having been placed in position, but her side-wheels being shipped on deck.

On April 10th, 1836, she dropped anchor opposite Fort Vancouver on the Columbia River. Soon afterwards the engineers turned their attention to the engines and we read that they "found them to answer very well."

From the time of her arrival at Fort Vancouver the "Beaver" made many a trip up and down the coast, trading with the Indians, collecting furs, carrying Hudson's Bay officers between their different posts, and taking her part in the establishing of new ones, notably Fort Victoria, which was built in 1843, much of the material and all the supplies for the new fort having been carried in the hold and on the decks of the Company's first steamer. The "Beaver" took part in the establishing of the Colony of British Columbia, when on November 19th, 1858, having taken Governor Douglas, Chief Justice David Cameron, Rear-Admiral Baynes, Matthew Begbie, Capt. John Grant, and a detachment of Royal Engineers to Fort Langley, where commissions were read, oaths administered, and British Columbia was officially proclaimed as a Crown colony.

In 1863 the vessel was leased to the Imperial Government and served until 1870 as a survey-ship under Capt. Daniel Pender, R.N.

Upon return to the Company in 1870 she was extensively repaired. She was converted into a tow-boat in 1874 and sold to a private company. She was badly burned in 1880, sank in Burrard Inlet in 1883, but was repaired and returned to service as solid as ever.

The B.C. Towing and Transportation Company operated her until 1888, when she was again licensed to carry passengers, operating between the different logging camps. While engaged in this service she struck a rock at Prospect Point at the entrance to Vancouver Harbour on the night of July 26th, 1888.

For four years she lay there abandoned to the ravages of souvenir-hunters and the tempestuous elements of the weather, when the swell from the steamer "Yosemite" one day caused her to work loose and fall into the channel, thus losing to posterity one of the most historic hulls on the Pacific Coast.

THE HANDLE OF THE GAVEL IS AFRICAN TIMBER TAKEN FROM A DUNDEE-BUILT WHALER NAMED "JAPAN."

NEWS FROM THE FIELD

MEETINGS IN PORTUGAL AND SPAIN ADJOURNED

DUE to the war in Spain, the meeting of the International Union Against Tuberculosis, which was to be held September 7–10, in Lisbon, Portugal, has been adjourned.

The Third International Congress on Malaria, which was to be held October 12–18, in Madrid, has also been adjourned.

HENRY S. WELLCOME

SIR Henry S. Wellcome, British scientist and explorer, and head of the firm of Burroughs, Wellcome & Co., London, manufacturers of chemicals and drugs, died July 25, at the age of 83.

Sir Henry S. Wellcome was a native of Wisconsin who became a British citizen by naturalization during the World War. He founded the Wellcome Bureau of Scientific Research in 1911 and later the Tropical Research Laboratories and the Gordon Memorial College at Khartoum, Africa. In 1927 he founded the Lady Stanley Maternity Hospital in Uganda, Central Africa. He was internationally known for his researches in pharmacy and allied subjects.

CONFERENCE ON EDUCATIONAL BROADCASTING

THE First National Conference on Educational Broadcasting under the auspices of the United States Office of Education and the Federal Communications Commission will be held in Washington, D. C., December 10, 11, 12, 1936. This conference is widely sponsored by various organizations and is for the purpose of enabling persons who are interested in educational broadcasting to discuss means by which radio may become a more effective instrument for education, both formal and informal. It is planned also to serve as a clearing house for information on the latest technical and professional developments in educational broadcasting and to enable persons representing all phases of the subject to become acquainted and to exchange ideas and experiences. The American Public Health Association has been invited to be represented at this meeting.

CONNECTICUT MARRIAGE LAW

SINCE January 1, 1936, it has been compulsory for men and women desiring a license to marry in Connecticut to have a blood test for syphilis.

Up to July 6, according to the Connecticut State Health Department, about 1 blood test out of every 100 made at the state department of health laboratories had been reported distinctly positive for syphilis.

MOTHERS' MILK PRESERVING PROCESS

PEDIATRICIANS in New York City saw new hope for saving the lives of an increasing number of prematurely born babies when, on July 24, the Mothers' Milk Bureau of the Children's Welfare Federation announced the adoption of a new process of quickly freezing mothers' milk.

The process was invented by Washington Platt, a scientist in the Syracuse, N. Y., research laboratory of The Borden Company, and was clinically tested by Dr. Paul W. Emerson of Boston. It makes it possible for the first time to keep mothers' milk for several months or more, transport it,

and feed it to prematurely born or ill babies without any subsequent action other than thawing and warming.

A license for the use of the new process, without charge, was turned over to the Federation by The Borden Company during ceremonies on July 24. James A. Tobey, Dr.P.H., Director of Health Service of The Borden Company, made the presentation.

RESEARCH FELLOWSHIPS

ACCORDING to *Science*, the British Medical Research Council has announced that three junior fellowships will be offered immediately, for award to qualified medical men wishing to receive training with a view to careers in research work in tropical medicine. Preference will be given to candidates who have already had preliminary experience of methods of research in some branch of medical science and the fellowships will be tenable for three years, the first year to be spent at a school of tropical medicine; the second in doing research in some institution; and the third largely in work under direction at some center in the tropics. Further information can be found in the August 14 issue of *Science*, page 149.

PROGRESS UNDER SOCIAL SECURITY ACT

"AMPLE proof that the Social Security Act is sound and workable is furnished by the progress achieved during the few months it has been in existence. Every state in the Union, plus Alaska, Hawaii, and the District of Columbia, is coöperating with the federal government in one or another of the various activities encouraged by this Act.

"Thirty-four states and the District of Columbia are already coöperating in the program of pensions to needy aged, needy blind, and dependent children. Of these, 32 states have plans which take care of 629,000 aged; 19 states have plans which take care of 185,000 dependent children, and 21 states have plans which take care of 21,000 needy blind. The total number covered under these various plans in the 35 states is 835,000 persons. Although funds were made available by Congress only 4 months ago $25,000,000 will have been granted the states by the end of this month for use in financing these state plans.

"In addition, 14 states have enacted unemployment compensation laws, 12 of which have already been approved by the Board. These 12 laws cover approximately 7,200,000 workers or 40 per cent of the total that will be covered when all the states enact similar laws. . . .

"Every effort has been made not to hamper the forces of recovery now running so strongly. With that end in view the social security program has been adjusted to go into effect by easy stages. . . . Right now we have a million old people over 65 years of age being supported out of public funds. We also have over 3,000,000 employable persons being supported out of public funds. The proportion of the aged who will need to be supported by the government will most certainly continue to increase, if we may judge from the experience of older countries.

"Regardless of whether or not we have a social security act it will still be necessary to maintain persons who become dependent in their old age and it will still be necessary to feed the unemployed. The Social Security Act merely undertakes to make a more equitable and a more systematic distribution of existing costs. In so doing it does not seek to rob life of its challenge, but to provide some minimum protection against those hazards which would otherwise be overwhelming."—Arthur J. Altmeyer, Acting Chairman, Social Security Board. Broadcast June 15, 1936.

NORTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION

OFFICERS for 1936 elected by the Northern California Public Health Association at its annual meeting are as follows:

President—Earl H. Coleman, M.D., Fresno
President-Elect—W. H. Kellogg, M.D., Berkeley
Vice-President—Louis Olsen, Palo Alto
Treasurer—Helen S. Hartley, Stockton
Secretary—I. O. Church, M.D., Oakland
Representative to the Regional Board of the Western Branch A.P.H.A.—Richard G. Soutar, Jr., M.D., Sacramento
Representative on the Governing Council of the A.P.H.A.—J. C. Geiger, M.D., San Francisco

PERSONALS

LYNN M. GARNER, M.D., member A.P.H.A., Director, Miller County Health Department, Tuscumbia, Mo., was appointed Director of the Greene County Health Department, to succeed John W. Williams, Jr., M.D., member A.P.H.A. Dr. Williams is to take charge of a division of the Missouri State Health Department.

JEAN V. LATIMER, F.A.P.H.A., has recently been appointed to the position of Coördinator of Health Education for the Division of Child Hygiene, Massachusetts Department of Public Health, with offices at Boston.

ROGER W. TRUESDAIL, PH.D., member A.P.H.A., President and Director of the Truesdail Laboratories, Inc., at Los Angeles, Calif., announces the appointment of three new staff members. They are:

C. E. P. Jeffreys, Ph.D., Research Chemist and Bacteriologist. Dr. Jeffreys has been the recipient, for the past 2 years, of a Rockefeller Foundation Grant for Medical Research at the California Institute of Technology. He is one of the "abstractors" of *Chemical Abstracts*.

Marion G. Sharp, Nutritionist.

Irving G. Halpern, Chemist.

J. C. GEIGER, M.D., F.A.P.H.A., Director of Public Health, City and County of San Francisco, Calif., sailed July 21 on the S.S. Mariposa for the South Sea Islands, Australia, and New Zealand, for a vacation. He was accompanied by his wife and daughter.

MATTHEW H. GRISWOLD, M.D., of Kensington, Conn., Health Officer of Berlin, has been appointed public health physician in the Connecticut State Department of Health to specialize in cancer work, a newly created position. The state survey was made possible with funds granted to the State Health Department by the 1935 legislature under a bill sponsored by the Connecticut State Medical Society. Dr. Griswold will coöperate with the Tumor Committee of the State Medical Society in its cancer program. About 16 clinics are now operating at general hospitals in the state, as a result of the Society's program, and others are planned.

ADRIAN L. CARSON, JR., M.D., member A.P.H.A., Health Officer of Fairfax County, Va., has been named Director of the Bureau of Maternal and Child Hygiene of the Virginia State Health Department.

EDWARD M. HOLMES, JR., M.D., member A.P.H.A., of Richmond, Va., has been appointed Health Officer of Fairfax County, to succeed Adrian L. Carson, Jr., M.D.

DR. JOHN A. MALMSTROM has resigned as Health Officer of Virginia, Minn., to return to private practice.

NATALE COLOSI, M.S., PH.D., has been appointed General Director of the Parkway Hospital, New York, N. Y. Dr. Colosi has served as instructor in Bacteriology at New York University College of Medicine and is a member of the teaching staff of Wagner College, Staten Island, New York.

CONFERENCES AND DATES

Aug. 31–Sept. 12, Harvard Tercentenary Conference of Arts and Sciences, Cambridge, Mass.

Sept. 1–4, Annual Conference, Governmental Research Association, Ann Arbor, Mich.

Sept. 2–4, Annual Convention, National Shade Tree Conference, Hotel Statler, Boston, Mass.

Sept. 2–4, Union of Nova Scotia Municipalities, Digby, Nova Scotia.

Sept. 2–4, Annual Meeting, Ontario Municipal Association, Toronto, Ont.

Sept. 7–9, Cancer Institute, University of Wisconsin, Madison, Wis.

Sept. 7–10, International Union Against Tuberculosis, Lisbon, Portugal. *Adjourned because of unrest in Spain.*

Sept. 7–11, Sixtieth Anniversary Meeting, American Chemical Society, Pittsburgh, Pa.

Sept. 7–12, Third World Power Conference, National Power Policy Committee, Department of the Interior Building, Washington, D. C.

Sept. 9–12, Annual Meeting, American Forestry Association, Hotel Lakeside, Eagles Mere, Pa.

Sept. 14–17, Annual Convention, League of California Municipalities, Santa Monica, Calif.

Sept. 14–17, Annual Meeting, California Sewage Works Association, Santa Monica, Calif.

Sept. 15–30, First International Congress of Sanatoria and Private Nursing Homes; Margitsziget, Sanatorium, Budapest, Hungary.

Sept. 21–23, Annual Convention, American Institute of Park Executives and the American Park Society, South Bend, Ind.

Sept. 21–23, Annual Meeting, Rocky Mountain Section—American Water Works Association, Denver, Colo.

Sept. 22–25, Annual Meeting—New England Water Works Association, Pennsylvania Hotel, New York, N. Y.

Sept. 23–25, Annual Meeting of the New York State Association of Dairy and Milk Inspectors, Van Curler Hotel, Schenectady, N. Y.

Sept. 23–26, Mississippi Valley Conference on Tuberculosis, The Mississippi Valley Sanatorium Association, Hotel Pere Marquette, Peoria, Ill.

Sept. 24–25, League of Wisconsin Municipalities, Manitowoc, Wis.

Sept. 28, 29, Third Annual Meeting, Rocky Mountain Tuberculosis Conference, Franciscan Hotel, Albuquerque, N. M.

Sept. 28–30, Public Works Congress—American Society of Municipal Engineers—International Association of Public Works Officials, Toronto, Ont.

Sept. 28–Oct. 1, American Society of Municipal Engineers, Toronto, Ont., Canada.

Sept. 28–Oct. 2, American Hospital Association, Cleveland, Ohio

Sept. 28–Oct. 2, American Assn. of Port Authorities, San Francisco, Calif.

Oct. 1–3, Southern Tuberculosis Conference, Hot Springs, Ark.

Oct. 2, 3, Public Meeting—on Water Supply, Flood Control, and Pollution—of the Interstate Commission on the Delaware River Basin; Buckwood Inn, Shawnee-on-the-Delaware, Pa.

Oct. 5–9, Annual Safety Congress and Exposition, National Safety Council, Atlantic City, N. J.

Oct. 6–12, Fire Prevention Week.

Oct. 9, 10, New York State Sewage Works Association, Geneva, N. Y.

Oct. 10–18, National Dairy Show, National Dairy Assn., Dallas, Tex.

Oct. 12, 13, Canadian Dental Association, Montreal, Que.

Oct. 12–15, Annual Convention—Southwest Section, American Water Works Association, Fort Smith, Ark.

Oct. 12–16, Public Ownership League, Springfield, Ill.

Oct. 12–17, The Dairy Industries Exposition, Atlantic City, N. J.

Oct. 12–18, Third International Congress on Malaria, Madrid, Spain. *Adjourned because of unrest in Spain.*

Oct. 14–16, Annual Convention, Pennsylvania Water Works Association, Haddon Hall, Atlantic City, N. J.

Oct. 14–17, Annual Civil Service Assembly of the United States and Canada, Cincinnati, Ohio.

Oct. 15, 16, Annual Convention—New York Section, American Water Works Assn., Saratoga Springs, N. Y.

Oct. 17–25, Centennial Exposition Dairy Show, Atlantic City, N. J.

Oct. 19–20, Conference of State Sanitary Engineers, New Orleans, La.

Oct. 19–21, Annual Meeting, International City Managers' Association, Richmond, Va.

Oct. 20–23 (Tues., Wed., Thurs., Fri.), Sixty-fifth Annual Meeting of the American Public Health Association, New Orleans, La. Meetings Headquarters, Municipal Auditorium; Residence Headquarters, Hotel Roosevelt.

Oct. 20–23, New Orleans, La.:

American Association of School Physicians.
American Association of State Registration Executives.
Association of Women in Public Health.
Conference of State Laboratory Directors.
International Society of Medical Officers of Health.
National Committee of Health Council Executives.
State Conference of Sanitary Engineers.

Oct. 21–23, Ontario Hospital Association, Toronto, Ont.

Oct. 21–24, Annual Civil Service Assembly of the United States and Canada, Cincinnati, Ohio

Oct. 23, 24, Annual Convention—New Jersey Section, American Water Works Association—jointly with the New Jersey Association of Water Superintendents; Hotel Ambassador, Atlantic City, N. J.

Oct. 26–28, Annual Meeting—Missouri Valley Section, American Water Works Association, Iowa City, Ia.

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